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## ON RETAINED PLACENTA, AND PROLAPSED UTERUS AND VAGINA IN THE COW.

BY A. E. MACGILLIVRAY, BANFF, N.B.

HAVING had many years experience as a veterinary obstetrician, during which I have met with a great variety of cases of the above untoward nature, I may, perhaps, be allowed to offer a few remarks on the rather remarkable case reported in your issue for August last, by *A Surgeon and Justice of the Peace.*

This gentleman has a cow which, he tells us, calved all right on the 13th June last, but she failed to get rid of the after-birth, and to expedite its expulsion, his servant attached to the protruding part half a brick. This had no effect until the morning of the 16th, when a "great deal" came away. This "great deal" our worthy Justice of the Peace found to be "an enormous mass" which *nearly* (?) reached to the cow's hocks, and consisted of "inverted vagina and uterus" and shreds of placenta. No word of the retained placenta itself! Did the brick produce the desired effect?

A veterinary surgeon was now called, but would not, or could not, come; so that our "Surgeon" was compelled to operate himself—with the assistance of a farm bailiff and a friend, and, no doubt, his own servant. Four operators to do a job which many a poor V.S. has to get over alone!

Our operators called to their aid two ounces of chloroform in an old hat; half-an-ounce of laudanum was, "by means of a long, flexible tube and a funnel," poured into a bran mash, which the cow relished—(Query: What, in the name of wonder, was the use of the flexible tube and funnel for such

a purpose?)—a few grains of permanganate of potash in solution, and a pint bottle as a vaginal pessary.

With these assistants and these accessories, the feat was accomplished; the "mass" was returned gently, bit by bit, until the whole was out of sight! No great barbarity, no ropes nor pulleys, no lifting of hind-quarters, and knocking about—*as in the veterinary profession!*

We congratulate the profession on this newly-discovered and very remarkable *modus operandi* for the reduction of that most untoward accident, Prolapsus Uteri; but, unfortunately, at the same time, we must most firmly deny that, in this surgeon's cow, the uterus was prolapsed! There is no use mincing matters. Our Justice of the Peace evidently discovered that commodity known as a mare's nest. This is clearly brought out on making a critical analysis of the *minutiæ* of his report:—

(1.) The "enormous mass" reached nearly to the cow's hocks; the fact being that a "mass," consisting of uterus and vagina fully prolapsed, would reach fully to the cow's heels! It seems to me that the vagina only had been fully prolapsed, which would actually reach almost to the hocks.

(2.) The prolapsed vagina and uterus of a cow could never be returned *gently*, as it requires one's utmost strength to do so, and, commonly, a second party to assist in the *very forcible* return of the prolapsed parts; but such force must be very cautiously put forth.

(3.) A pint bottle as a pessary in such a case is, to speak plainly, merely child's play, more especially when only in the vagina. I had a case of this sort last spring, in which the actually prolapsed uterus was successfully reduced by an empiric, who introduced three large towels and a cotton bed-sheet, all soaked in cold water, into the vagina as a pessary, and retained them in the canal with his own strong arm, he being in the recumbent position, until my arrival, when I injected, hypodermically, 6 grains of morphia, and then withdrew the towels and sheet, explored the vagina, and inserted four metallic sutures in the lips of same. Three days after I was again sent for, as one of the sutures had given way, and the "cow's bed" was again peeping out. On my arrival, I extracted the remaining sutures, in order to have a thorough examination; and it was well I did so, for I found that *one* of the *cornua uteri* was still inverted, and that it was *its* extreme point which was always threatening to make its exit per the vagina. With great difficulty I succeeded in returning the

prolapsed cornu, or in other words, half of the uterus, to its natural and original position. But how was it to be kept there? I kept my whole arm there, at full stretch, for fully 20 minutes. I then withdrew my arm, and got a bottle, nearly the size of a pint one, which I introduced into the uterus as far as my arm could reach, into the recently prolapsed cornu, and held it there, pushed before my hand, for fully other 20 minutes. I then withdrew my arm and the bottle, inserted other three metallic sutures, and injected other six grains of morphia. No further prolapse took place.

(4.) Half-an-ounce of laudanum, even when poured into a mash with a long flexible tube and funnel, is useless as a sedative for a cow. The hypodermic solution of morphia is most successful, but I have often given three ounces of laudanum, in a dose of oil or a little cold water, in such cases, to cows by the mouth without the medium of a bran mash.

(5.) "A little common sense" is, no doubt, extremely necessary in even the reduction of a "prolapsus uteri et vaginæ" in a cow; but I opine it is equally necessary in the case of "A Surgeon" taking upon himself to accuse a whole profession (veterinary) of barbarity in their treatment, and knocking about their patients, "so much so, that few recover"!

Common sense, indeed! Such statements and "common sense" are widely apart, and this accuser of the veterinary profession seems to have been actually "bereft of common sense" when he penned these sentiments.

*Practical Remarks:*—Prolapse of the uterus in the cow, if it occur a short time after calving, is always a very serious matter; and the sooner after calving the worse is the case, and the more difficult in replacement. Another noticeable phase of this accident is, that the sooner after calving the greater the amount of *straining*, and consequently the greater difficulty in reduction. If the whole uterus be prolapsed—that is, the body and the two cornua—and turned inside out, as well as outside the cow, and have been outside for an hour or two, then the case is exceedingly grave indeed.

It is a well known fact, however, that there are cases in which only part of the uterus is found prolapsed, such as one of the cornua and the corresponding part of the body becoming inverted and protruded beyond the vulva. I had a most peculiar case of this sort two years ago, where the one half of the uterus was found one morning lying behind a

newly calved cow; it was detached from the cow—as cleanly cut away as if purposely done with a knife! No explanation was ever got as to how this extraordinary excision and expulsion, or expulsion and excision, took place. I was sent for immediately, and lost no time in being on the spot, some six miles out, by which time the poor cow was almost gone from internal hæmorrhage. As a matter of course, I could do nothing but order immediate slaughter. There was no external hæmorrhage, the blood escaping from the remaining half of the uterus having all lodged in the abdominal cavity. The detached half of the uterus was inverted and very much swollen. The owner seemed rather inclined to blame his servant; but I pooh-poohed! such an idea.

If we are to suppose that the excision or detachment of this inverted half of a uterus took place outside, we have proof positive that prolapse of one-half only of the uterus does occur, as the other half of this uterus was never seen outside, having always remained in its natural position, being neither inverted nor protruded.

Before reduction is ever attempted, we ought always to thoroughly settle what is inverted and protruded; whether we have merely the vagina, merely the uterus as a whole, or the uterus with cornua inverted and vagina fully protruded. A thorough knowledge of "what's what" is absolutely necessary before accomplishing a successful replacement.

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## BLACK QUARTER AND ITS SO-CALLED PREVENTIVES.*

BY JOHN PENBERTHY, F.R.C.V.S., PROFESSOR OF SURGERY AND THERAPEUTICS, ROYAL VETERINARY COLLEGE, LONDON.

In acceding to the request of the Provisional Committee to write a short paper on the above, I am actuated by a sense of the compliment paid me, and the importance of the subject to the profession and stock owners, rather than by possession of fresh facts of a practical nature unknown to the members of this Association.

Though characteristically limited to certain areas, *i.e.* typically enzöötic, there is perhaps no disease of farm stock so widely spread, so destructive, or so persistently associated with certain fields, farms, or districts. When we realize that on very many estates the losses attributed to its ravages

* Read at the Meeting of the National Veterinary Association on July 22nd.

among young horned stock amount to from 7 per cent. to 12 per cent., its study must be of the deepest interest to us; but following the injunction of our Secretary, I will endeavour to occupy space and time due to a minor subject with fitting respect to brevity, and deal as concisely as possible with what I regard the more essential points.

The general distribution of the disease has led to the adoption of many synonyms, and with few exceptions these are in some way significant of one or other of its more manifest characters rather than of its intimate nature. Thus it is vulgarly known as "Black Leg," "Black Quarter," "Quarter Ill or Evil," "Joint Murrain," "Irons," "Hyerus," "Speed," "Puck," "Strike," "Falling," "Fellon," &c,, &c.; technically as "Symptomatic Anthrax," "Charbon Bactérien," "Charbon essentiel de Chabert," "Charbon Emphysemateux du bœuf," "Fiévre putride et gangréneuse," "Ranchbrand," &c., &c. Here we may remark that the commoner names have done far less to obscure the nature of the disease and to mislead than the so-called scientific. It is now not rare to hear this disease and anthrax spoken of as if they were the same or in intimate relation. They are perfectly separate and distinct, and as far as we know in no way related. Black Quarter is undoubtedly a specific disease following entrance into the body of a micro-organism named Bacterium or Bacillus Chauvosi, which has little or no resemblance in appearance or action to Bacillus Anthracis. Though we do not propose to go minutely into the characteristics of the Morbific Microbe, it is perhaps necessary that we state some facts concerning it, apart from discussion as to whether it is bacterium, bacillus, or clostridium. As most commonly met with it is from ·005 mm. to ·010 mm. in length and ·004 mm. to ·0013 mm. in breadth, in the serosity of a fresh tumour usually straight and differentiated as by a spore at one end, in muscle a few days after death very irregular in shape, often dumb-bell shaped and even fusiform. Shortly after death it is found in large numbers in the characteristic lesion and in the bile, very few in the blood, none in the urine; after a while it becomes more generally distributed through the carcase. As compared with bacillus anthracis, it is shorter, thicker, rounded at the ends, mobile, capable of living and manifesting its vital phenomena in presence of putrefaction, and of retaining its vitality here for long periods. It is said to readily pass through the membranes from the mother to fœtus, and in fatal cases is found in the latter. It possesses a remarkable power of forming gases in an albuminous

medium. It can be cultivated only anærobically. Fowl broth mixed with glycerine and sulphate of iron, and the oxygen expelled by carbonic acid gas or hydrogen, affords a good cultivation medium.

Experimentally tested by injection of the virus, the different species of animals manifest various susceptibility. Guinea pigs, cattle from six months to four years old, and sheep are more readily affected. Young horses have a more feeble receptivity.* The rabbit, though said by some observers† to take the disease readily, I have found with ordinary methods to have little susceptibility, but if the part to be inoculated be previously bruised, or the virus inserted in an aseptic glass capsule, and this be broken in a few hours, typical Black Quarter ensues. Swine, dogs, cats, rats, poultry, and pigeons are immune. ‡Cold blooded animals in their natural state withstand large quantities, but if their temperature be considerably raised they fall ill and die. Calves below five months enjoy a remarkable immunity, and young guinea pigs are extremely easily affected.

The period of incubation in experimental cases is very short, ranging from 12 to 24 hours. Fatal effects usually follow injection of small quantities of active virus into certain parts, and death takes place commonly within 60 hours. The lesion produced by the virus is so well known as not to require description. The local effect is the disorganisation of the tissues about the seat of inoculation, breaking up of the blood, and formation of gases in the tissues; depending on or associated with this is a rise of temperature and great constitutional disturbance.

The effect seems to depend largely on the susceptibility of the animal, the condition and amount of the virus, and the mode of entry. The susceptibility of species is evident, and, so far, inexplicable. That of the individual may be influenced by idiosyncrasy, age, and previous disease, and it is a general impression that certain states of developmental activities of the system predispose. The individual natural immunity to all specific disease is generally recognised. Age seems to have a considerable influence. We have before remarked that calves under five months old rarely become affected; but recent observations go to prove that weaned calves under this age die of the malady more commonly than unweaned calves of the same age. Spontaneous Black Quarter seems

* Arloing, Cornevin, and Thomas, Le Charbon Symptomatique, 1887.
† Klein's Micro-Organisms and Disease, 1885.
‡ Arloing, Cornevin, and Thomas.

to affect cattle as regards age in an order approximately represented as follows:—

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| From | 6 | months | to | 1 | year | .. | .. | 38 |
| „ | 1 | year | to | 2 | years | .. | .. | 45 |
| „ | 2 | years | to | 3 | „ | .. | .. | 8 |
| „ | 3 | „ | | 4 | „ | .. | .. | 7 |
| „ | 4 | „ | | 5 | „ | .. | .. | 1 |
| „ | 5 | „ | | 6 | „ | .. | .. | 1 |
| | | | | | | | | 100 |

*i.e.*, of 100 fatal cases. The power of the virus may be affected in various ways. Fresh and moist it is much more easily attenuated than dried. Mixed with lactic or sarcolactic acid the virulence is increased.* Weakened virus becomes more powerful after passing through susceptible animals. Many chemical substances have a marked effect short of destroying the vitality.

The effect is materially dependent on the amount of the virus introduced. Thus, in cattle, one is rarely able to induce the disease by pricking with a lancet which has been dipped in serosity from affected muscle; indeed a considerable number of organisms, or those specially potent, seem necessary to its production. The malady follows entrance of the virus into the connective tissues, blood-stream, respiratory and alimentary tracts. Small quantities by the connective tissue give fatal effect; larger quantities by the respiratory and alimentary channels; while very large quantities only injected into the blood-streams are effective. Arloing, Cornevin, and Thomas quote a case of Black Quarter following the ingestion of the virus by the alimentary way. My own experiments on this point have failed except when some of the connective tissues have been forcibly injured, in which case disease has become localised in the seat of injury.

The amount and looseness of connective tissue appear to have a marked effect in determining the action of the poison. Injection of considerable quantities into the tip of the tail induce a comparatively benign local lesion, the general disturbance and danger increasing in proportion with the nearness of the injected spot to the trunk.

According to the mode of entry, the disease may probably assume two forms, varying in one essential, namely, that in one the more general disturbance precedes, and in the other succeeds, the local. Thus, after entrance (or very large quantities) into the blood-stream, the rigors, heightened

* Recueil de Médicine Vétérinaire, August, 1887.

temperature, &c., precede any local lesion; whereas, when the disease depends on entry by the subcutaneous tissues, the signs of fever follow, or are concomitant with the lesion.

As the foregoing can only be useful to us as they may be made to bear on the prevention or cure of the malady, it is for us to consider the so-called "preventives." To the fact that immunity is often inherited or naturally acquired every-day practice clearly points, and that it may be artificially produced experiment leaves no doubt. On what this immunity may depend, I fear it would not be profitable for us to endeavour to show here. However, direct observation by Dr. Ruffer* proves that leucocytes, lymphocytes, or phagocytes possess a remarkably destructive influence over these disease-producing organisms, and that in the struggle between the two, each secretes a substance—that of the leucocytes—in large quantities, destroying the bacilli, and that given out by the bacilli, breaking down the red corpuscles, large numbers of which are afterwards found in the spleen. If the virus be in small quantity, or the leucocytes specially active, the result is destruction of the bacilli, recovery, and immunity from the disease, as proved by test inoculation after with virulent matter. This is supported by what may be observed in practice, for if an animal be inoculated, naturally or artificially, with the virus in considerable amount (though not sufficient to cause death), there is, at the seat of inoculation, a larger or smaller collection of leucocytes, in the form of pus.† I have tested, by inoculation of large quantities of virus, cattle which have recovered from Black Quarter, by formation of abscess at the lesion, and found them proof against the disease. Poisons which have the power of lessening the activity of leucocytes given to animals increase and accelerate the action of the bacilli, and hasten the fatalities. The observations of Hankin‡ tend to prove that cell globulin possesses bacteria-killing material, and that serum and phagocytes probably contain the same or allied substance. This defensive substance is most noticeable in febrile blood, especially associated with inflammation induced by pathogenic organisms. The injection of some ferments, as trypsin, increases this material in the system. Undoubtedly in the immune animal there exists a something having a bactericidal or deterrent action, not injurious to the system in general; and though whether this be albumose, ptomaine, or what else,

* British Medical Journal, May 24, 1890.
† Journal Royal Agricultural Society, 1886. Experimental work on Quarter Ill.
‡ Proc. Roy. Soc., vol. 48.

it matters little to us now: practically it can be only to the production of this material that we may look for a plan of protective inoculation. That this power normally exists in the blood-stream to a greater extent than elsewhere is highly probable, as shown by the following experience on the lines laid down in Arloing's work.* On the 12th November, 1886, we injected into the lumen of the jugular vein of each of four twelve-month old calves eight or ten drops of juice squeezed from affected muscle of a young bullock, just dead of naturally-contracted Black Quarter. These inoculated calves were then placed with four others, which we call "control," on to a pasture notorious for fatalities from the disease. No disturbance except a rise of about one degree of temperature was noticeable. On the 24th, one of the uninoculated calves died of typical Quarter Ill. Some muscle juice was obtained from the most affected part of this animal, and a drachm injected into the intramuscular and subcutaneous tissue of the remaining seven, with the result that nothing beyond a rise of a degree of temperature was observable in the four previously intravenously inoculated, whereas two of the three control animals contracted Quarter Ill, and died, one on the 26th and one on the 27th November. In the other the temperature ran up to 104·6, the seat of inoculation became much swollen, and a very large abscess formed, and by the 8th of December constitutional disturbance disappeared, and the animal, with the exception of lameness of the affected limb, seemed well. It is thus seen that the four protected animals survived the crucial test unaffected in any way; that, of the unprotected, one contracted fatal Black Quarter naturally, three artificially, two of which succumbed, and one survived with the formation of a large abscess. Following this, we inoculated intravenously twenty-four young cattle which grazed on the most dangerous pastures, during their lives free from Black Quarter. But for the practical value of this method it must be stated that, while undeniably affording protection, the operation is fraught with some danger, as shown by the next experience.

In June, 1888, at the special request of the owner, we intravenously inoculated fifty-three young cattle, without skilled assistance, with the unfortunate result of death of three from the disease within three days of operation. It is, however, interesting to note that, of the survivors, none afterwards contracted the disease. Though every care was taken, from

* Roy. Agric. Soc. Journal, 1888.

the seat of the lesion, and our previous experience of the effect of considerable quantities in the blood-stream, we are forced to the inference that some of the virus gained the connective tissues surrounding the vein. Arloing, Cornevin, and Thomas record experiments with fresh and dried virus injected into the trachea, and with small quantities of fresh virus inserted into the subcutaneous tissues, and state that these means are protective; but inasmuch as the virulence of muscle juice is liable to vary very materially, there is, to my mind, too great a danger connected with its use. These observers also state that if the virus is submitted to the action of some chemical agents it becomes attenuated, and, injected into the system, confers immunity. They also assert that if the affected muscles are chopped rather finely, squeezed through a rather coarse strainer, and the expressed juice allowed to dry at 35° C., it retains its activity little impaired. This material then submitted to higher temperatures, the one part to 100° C., and the other to 85° C.; in both cases retains some but decreased vitality. This is reduced to powder, and used as an inoculating matter to afford protection. For the operation, a little of the powder submitted to 100° C. is mixed with water and injected underneath the skin of the tail; in about twelve days this is followed by a similar injection of the powder submitted to 85° C. There is little or no danger in the use of this powder, and the plan is very largely adopted in France and Switzerland, where Black Quarter is very rife. A large number of statistics appear to prove its beneficial action. Thus, in 1887, the Amalgamated Agricultural Societies at the base of Mount Jura vaccinated in this way 1,703 animals, and turned them on to pastures with 18,720 unvaccinated. At the end of the summer it was found that deaths from Black Quarter among the non-vaccinated were 1·30 per cent., and amongst vaccinated 1·75 per thousand. In 1884, M. Strehel inoculated by this method 14,444 beasts in the Canton of Friborg. In five years the disease killed only 1 out of every 555, while of 22,300 cattle not so inoculated, but living with the above, 1 out of every 43 succumbed to Black Quarter. From this it would appear that a remarkable success follows this means. It is very simple of application. The dried virus, reduced to powder, is supplied in packets. It will, however, be gathered from the foregoing that protection is not absolute. We were anxious to put the process to the test, and having been informed by M. Arloing that M. Fromage, of Paris, was his accredited agent, obtained through him a supply of the so-called "vaccin." At first we

used this on several animals on a farm in Sussex, and some guinea pigs, but the application of the crucial test to "vaccinated" and control animals gave no decided results; but in January, 1886, most carefully following instructions sent us, we vaccinated a steer and heifer, each ten months old, and a guinea pig. Early in February a few drops of affected muscle juice were injected into the subcutaneous tissues of the cattle, and half a drop into the guinea pig, with the result that the guinea pig died of typical Black Quarter in 24½ hours, the steer in 44½ hours, and the heifer in 47 hours. This, of course, goes with the statistics to prove that protection is at least not absolute; but when speaking of the effect of the virus it will be remembered that we said the dose has material influence, and we may not condemn wholesale this plan which is so largely adopted and so highly spoken of, for it is more than likely that in the naturally contracted disease, in the great majority of cases, such large quantities of virus do not gain the system at one time as those injected by us when applying the test.

Whilst carrying out the foregoing we inoculated a guinea pig with some virus submitted to a temperature of 35° C., and when applying the test treated this animal in the same way. It survived, none the worse for the virulent inoculation. Thus encouraged, we submitted three guinea pigs to injection of muscle juice dried at 32° C., and three to that dried at 39° C. Within 98 hours one of each set died, but the survivors resisted the introduction of considerable quantities of fresh potent virus. This but tends to prove that modified virus affords protection.

Another material for preventive inoculation has been very lately under the consideration of the profession, that prepared by what is termed "Kitt's" method, *i.e.*, subjection of the virus to the action of steam, &c. By the kindness of Professor MacFadyen I got a supply of this material, which I used for "vaccinating" two calves of 18 months. My vaccinations were followed by no appreciable disturbances, local or general. They were under most careful supervision, the temperature taken twice daily for 14 days after the operations, that of neither animal reaching 103° F. After the lapse of a month I injected 50 drops of affected muscle juice deep into the connective tissue of each of these beasts, and another control heifer of the same age. The result in all three was simply trifling swelling at the seat of inoculation, and in a few days all was apparently well. This experiment, unfortunately, proves nothing as to the protective power of Kitt's "vaccine,"

but adds further testimony to facts which must have been observed by everyone intimately acquainted with the workings of the causal factor, concerning the erratic nature of the disease. In many cases I have been astonished with the resistance offered to large quantities of muscle juice introduced into the intramuscular or subcutaneous tissues, and from careful examination I am disposed to think that the differences in result depend not altogether on the difference in numbers of bacilli in the muscle juice. Recent records of experience with Kitt's "vaccine" show that there is some danger in its application, and some doubt as to its power to protect.

The foregoing is a cursory and very incomplete glance at some of the more or less generally known or accredited preventives by inoculation. A paper of this kind would not afford proper matter for discussion if other so-called preventives were not touched on. In Great Britain the most common prophylactic treatment applied to Black Quarter is that of "setoning," and though adopted by and relied on by many practitioners who have very large experience, I do not think all are convinced of its beneficial action. That, like other means we have spoken of, it is not absolutely effectual there is no shadow of doubt. We have seen in one season, on 11 different farms, 11 young animals dead from "Quarter Ill," with the setons *in situ* at the time of death, beside at different times very many others which had been setoned. It is not with veterinary surgeons only, but with stock owners, that this method finds a large amount of favour. In our own minds, we are bound to say, there is a strong suspicion that to the erratic nature of the disease much of the credit is due. It is common when asking those who favour the operation for views as to how setons produce protection, to get the candid confession that it cannot be explained, but that the fact remains, for in their experience many cases have been met with where though animals had died of Quarter Ill in certain pastures year by year till setoning has been carried out, when losses immediately cease. This is truly a common occurrence, and appears to favour the effect of the operation, but against it we have the experience that without setoning, or any other appreciable treatment, this freedom is often enjoyed, and it is quite natural that, if the animals were setoned, that the immunity should be attributed to their effect. We were struck by some remarks by Mr. Butcher, of Cleobury, in a recent number of the "Journal of Comparative Pathology, &c." This writer instanced a case when absence of the disease had followed the giving of cake. The owner, of course, credits

the cake with the power of prevention of Quarter Ill, and will use it, and if he should discontinue the use, and lose another animal, he will attribute his loss to absence of cake, and promptly, and with more faith than ever, resume the successful measure. It is not only setoning which may gain support in this way; protective inoculation may come in for its share. Some years since, I intravenously inoculated a herd of young cattle on a farm where great loss had been sustained for some years. I inquired of the owner some little time since as to the existence of the disease on his farm, and as he had not another case with pastured stock, I was not surprised to hear from him that he attributed his good fortune to my inoculation, though I did not ask how he thought stock unborn at the time of my inoculation of his herd had been protected. It is enough for him that he had no cases of Black Quarter.

While making the above remarks, it is far from us to assert that setons have no protective influence; but it is certainly a subject that demands settlement by experimental investigation, and a standing disgrace to our profession that this has not already been carried out. If the operation should be indisputably proved to be followed by no protective influence, it should be denounced by us as useless and cruel, and prohibited by law. The action of the Midland Counties V. M. Association in this respect is worthy of all emulation by kindred Institutions, and, I can scarcely forbear to remark here that if our Societies, National and Provincial, were to engage more on actual work, there would be thus afforded useful material for effectual talk and *raison d'etre*. Of the effect of setoning guinea pigs, we are satisfied that they are as susceptible to fatal Black Quarter some time after as before, though our experiments went to prove that if small quantities of virulent matter were injected into the guinea pig a day or so after the seton had been inserted, the animals did not contract fatal Black Quarter. Further experiments on calves are necessary, and, I am pleased to say, contemplated by the Committee of the Midland Counties Association.

Equally good results are attributed to the administration of Hyposulphite of Soda, and if later observers had verified the statements of Polli, of Milan,* there would seem great reason for placing confidence in this treatment, but in other hands this drug has not shown the same results. Outside the body Hyposulphite of Soda exercises little or no bactericidal action

* Finlay Dun, Veterinary Medicines, 6th edition, 566.

on the microbe of Quarter Ill; but from this it might not necessarily follow that after gaining the system it is not preventive, though the marvellous effects accorded to it are facts beyond our own experience of drugs. Our experiments on guinea pigs prove its inability to prevent or modify the disease in them. Its administration in practice has the great advantage of being harmless.

With the fullest intention of being brief and concise, we fear we may have laid ourselves open to a charge of discursiveness; but with so much experimental matter pointing to, but not exactly arriving at, a practical outcome, it is difficult to follow our best inclination. So with this apology, and with the hope that shortly further experiment will provide what is desired, we will conclude these remarks by summarising those points which we think bear most directly on this part of the subject.

It has been proved that protection can be artificially produced.

That insertion into the blood-stream of fresh virus is an effectual but practically dangerous means.

That naturally there is something in the blood which restrains the action of the virus.

That the leucocytes have a defensive and digestive function on the morbific agent, and that whatever increases this power lessens the chance of fatality following the entrance of the microbe. That during the conflict between the leucocytes and the virus a something is formed which protects for a longer or shorter time. That in other diseases a chemical product has been obtained from the organisms which, injected into the system, renders the animals immune from such disease.

That in cases, naturally or artificially induced, where a local lesion is observable, and where recovery takes place, an abscess (a collection of leucocytes) is usually formed. That, as a rule, inflammatory action, at the outset especially, increases the number of vigorous defending leucocytes. That three guinea pigs, in which inflammation had been established, did not become affected after small quantities of virus were injected in a sound part.

That dried virus, submitted to comparatively high temperatures, has been very largely used on the Continent, and that statistics on a large scale support the view that it is harmless, and protective against the spontaneous contraction of the malady, and is consequently worthy of further consideration.

That the beneficial action of setons has not been experimentally proved, and that, considering the discomfort caused

to animals by the operation, it is incumbent on bodies having funds at their disposal to endeavour to settle the matter.

That the erratic nature of the disease demands the greatest caution in making deductions from experiments for application to practice, and that experiments should be on a large scale, and repeated and performed on animals of the class we wish to protect, and not on animals of other species.

That, inasmuch as putrefaction has not a markedly deleterious effect on the microbes, we should dispose of the carcases of affected animals with great care.

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## RECENT EXPERIMENTS WITH MALLEIN.

BY LEONARD PEARSON, B.S., V.M.D., PENNSYLVANIA UNIVERSITY.

HELLMANN, of the Pasteur Institute, St. Petersburg, read a paper before a Scientific Society of that city, late in the month of March, in which he described some experiments made by him, with an aqueous extract of potato cultures of the glanders bacillus. He found that subcutaneous injections of 1 c.c. of this fluid, in glandered horses, was sufficient to cause an elevation of the temperature to 40°C. (104°F.) or more; there was also weakness, loss of appetite, local reaction at the point of injection and increased discharge from the nose. Injections into healthy horses, or horses suffering from other diseases than glanders, are said to be followed by no reaction. In one or two cases, injections into horses in which glanders had not been diagnosed, were followed by febrile reactions; but the subsequent autopsies showed the presence of the characteristic nodules of the disease. These experiments were made on cavalry horses of the Russian army.

Hellmann made his Mallein by floating off potato cultures of glanders bacillus with water, adding a little glycerine to the mixture, and heating it, at first to 40°C., then to 80°C., and, finally, sterilizing at 150°C.

Dr. Kalming, in the Veterinary School of Dorpat, Russia, has also extracted a substance from glander cultures, which, when injected into glandered horses, causes a characteristic febrile reaction, but produces no effect on healthy animals. Recent dispatches from Dorpat report the sad news that Dr. Kalming, in the course of his experiments, infected himself with glanders and has since died from this disease. Before the publication of any of this work, I had commenced, on the first of March, a series of experiments to determine whether glander cultures developed a toxine, or toxalbumine, which

would have an action similar to that of tuberculine. My Mallein was prepared as follows:

Sterilized glycerine bouillon made of meat extract, peptone, sodium chloride and glycerine was inoculated with virulent (second generation) glander bacilli, from potato cultures, and kept fourteen days in an incubator at 36·5°C. (The bacilli grew luxuriantly.) The cultures were now heated at 80°C. for several hours to kill the bacilli and condense the fluid; they were next filtered, through Kitasato's porcelain filter, and on three successive days heated, for twenty minutes each time, in moving steam (100°C.). The lymph made in this way is a perfectly clear fluid, a little thicker and darker than the original bouillon. Glandered and healthy guinea-pigs were injected with doses of 0·25-2·0 c.c. of this substance, and the diseased animals showed, without exceptions, both a general and local reaction. The former was manifested by depression, loss of appetite, and fever; the latter by redness and swelling, both of the inoculation wound and the seat of injection. The healthy animals did not react unless the dose was very large.

First experiment. Male guinea-pig, inoculated with virulent glanders, March 13th. Daily rectal temperature of 39·2°C. March 24th, injected in the flank (knee fold) with 0·5 c.c. of the lymph.

| | | |
|---|---|---|
| Temperature shortly before the injection | .. | 39·2 |
| „ after 4 hours | .. | 39·2 |
| „ „ 7 „ | .. | 39·4 |
| „ „ 10 „ | .. | **39·6** |
| „ „ 12 „ | .. | **39·8** |
| March 25th, A.M. | .. | 39·2 |
| „ 26th, „ | .. | 38·4 |

Although the animal was almost dead an injection of 0·3 c.c. was made.

| | | |
|---|---|---|
| After 6 hours | .. | 37·8 |
| „ 10 „ | .. | dead |

The autopsy showed glanderous processes in the spleen and testicles.

Second experiment. Male guinea-pig, inoculated March 20th. Daily rectal temperature of 39-39.2°C. March 24th, injected 0·25 c.c. of the lymph.

| | | |
|---|---|---|
| Temperature shortly before the injection | .. | 39·0 |
| „ after 4 hours | .. | 39·0 |
| „ „ 7 „ | .. | **39·3** |
| „ „ 10 „ | .. | **39·4** |
| „ „ 12 „ | .. | **40·1** |
| March 25th, A.M. | .. | 38·1 |
| „ 26th „ | .. | 38·9 |

A second injection of 0·4 c.c. was now made.

| | | | | | |
|---|---|---|---|---|---|
| Temperature after 6 hours | .. | .. | .. | .. | **39·3** |
| „ „ 11 „ | .. | .. | .. | .. | **39·8** |
| March 27th, A.M. | .. | .. | .. | .. | 39·1 |
| „ 28th „ | .. | .. | .. | .. | 39·0 |

Third experiment. Male guinea-pig, inoculated April 16th. Daily rectal temperature, 40·0-40·1-40·2°C. April 21st, injected 0·5 c.c.

| | | | | | |
|---|---|---|---|---|---|
| Temperature after 6 hours | .. | .. | .. | .. | 40·1 |
| „ „ 9 „ | .. | .. | .. | .. | **40·6** |
| „ „ 12 „ | .. | .. | .. | .. | **40·5** |
| April 22nd morning | .. | .. | .. | .. | 40·3 |
| „ afternoon | .. | .. | .. | .. | 40·2 |
| „ evening | .. | .. | .. | .. | 39·4 |
| April 23rd morning | .. | .. | .. | .. | 38·6 |
| „ 24th | .. | .. | .. | .. | 39·1 |

A second injection of 0·5 c.c. was now made.

| | | | | | |
|---|---|---|---|---|---|
| Temperature after 6 hours | .. | .. | .. | .. | **39·4** |
| April 25th morning | .. | .. | .. | .. | 38·3 |
| „ afternoon | .. | .. | .. | .. | dead |

The autopsy revealed glander nodules in the spleen, and glander bacilli in the blood.

Fourth experiment. Male guinea-pig, inoculated April 16th. Daily temperature, 30·6° to 39·7°C.

| | | | | | |
|---|---|---|---|---|---|
| April 21st, injected 0·5 c.c. Temperature | .. | .. | .. | .. | 39·6 |
| „ after 6 hours | .. | .. | .. | .. | 39·7 |
| „ „ 9 „ | .. | .. | .. | .. | 39·8 |
| „ „ 12 „ | .. | .. | .. | .. | **40·2** |

CONTROL EXPERIMENTS.

First experiment. Healthy male guinea-pig. For several days before the injection the temperature ranged from 38·6-38·9°C.

| | | | | | |
|---|---|---|---|---|---|
| April 21st. Temperature | .. | .. | .. | .. | 38·7 |
| Injected 0·5 c.c. | | | | | |
| Temperature after 6 hours | .. | .. | .. | .. | 38·7 |
| „ „ 9 „ | .. | .. | .. | .. | 38·6 |
| „ „ 12 „ | .. | .. | .. | .. | 38·7 |
| April 22nd | .. | .. | .. | .. | 38·7 |
| „ 23rd | .. | .. | .. | .. | 39·0 |
| „ 24th | .. | .. | .. | .. | 39·3 |
| Injected 0·5 c.c. | | | | | |
| Temperature after 6 hours | .. | .. | .. | .. | 38·9 |
| „ „ 9 „ | .. | .. | .. | .. | 39·0 |
| April 25th | .. | .. | .. | .. | 39·0 |

Second experiment. Healthy male guinea-pig. Before

the injection the temperature varied between 38·7 and 39·0°C.

| | | |
|---|---|---|
| April 21st, injected 0·5 c.c. | Temperature .. | 39·0 |
| Temperature after 8 hours | .. .. .. | 39·0 |
| „ „ 9 „ | .. .. .. | 38·9 |
| „ „ 12 „ | .. .. .. | 38·9 |
| April 22nd, A.M. .. | .. .. .. | 39·0 |
| „ 23rd „ .. | .. .. .. | 38·9 |

Third experiment. Healthy male guinea-pig. Temperature before the injection between 38·6-38.8°C.

| | | |
|---|---|---|
| April 7th, injected 2·0 c.c. | Temperature .. | 38·8 |
| Temperature after 8 hours | .. .. .. | 39·3 |
| „ „ 12 „ | .. .. .. | 39·4 |
| „ 8th, A.M. .. | .. .. .. | 39·3 |
| „ 9th „ .. | .. .. .. | 39·3 |
| „ 10th „ .. | .. .. .. | 39·2 |
| „ 11th „ .. | .. .. .. | 39·0 |

Fourth experiment. Healthy male guinea-pig. Temperature before the injection, ranged from 38·2 to 38·6°C.

| | | |
|---|---|---|
| April 2nd, injected 2·0 c.c. | Temperature .. | 38·2 |
| Temperature after 8 hours | .. .. .. | 38·4 |
| „ „ 12 „ | .. .. .. | 39·0 |
| April 3rd, A.M. .. | .. .. .. | 38·5 |
| „ 4th „ .. | .. .. .. | 38·8 |
| „ 5th „ .. | .. .. .. | 38·6 |

These experiments show that the action of Mallein on healthy and glandered guinea-pigs differ. Injections of doses of 0·25 to 0·5 in diseased animals, causes a decided local and general reaction, while these doses in healthy animals produce either no change whatever or, at most, a slight redness at the point of injection. Large doses, on the contrary (2·0 c.c.) cause a transitory fever. The resemblance, in these respects, between Mallein and tuberculine is quite noticeable. I could not see, in those cases in which repeated injections were made, that the Mallein had the least healing effect on the glander process. All of the inoculated animals died of generalized glanders. To what extent immunity can be produced by Mallein is, at present, impossible to say. I shall endeavour to make this an object of further experiment.

The above experiments were made in the Laboratory of the Veterinary School of the Prussian Army, and I wish to use this opportunity to thank its director, Chief Veterinarian Hall, for his kindness and favours to me during their progress.

Since the above was written, an article has appeared in the *Berliner Thierarzliche Wochenschrift* (No. 29, 1891), by Preusse,

of Dantzic, giving the results of some experiments made by him with Mallein. He used a fluid made by extracting potato cultures with equal parts of glycerine and water, and performed his experiments on horses. Six glandered and two healthy horses were injected with doses of from 0·1 to 0·3 c.c.; the former reacted strongly in from six to twelve hours, while the latter showed no change. The reaction was both local and general; the temperature rose, in some cases, to 40·1 and 40·4°C. All of the horses were killed, and the post-mortem examinations confirmed the ante-mortem diagnoses in each instance.

It is to be hoped that we will have here a medium for diagnosing glanders as reliable as the tuberculine is for diagnosing tuberculosis of cattle. The latest authentic report shows success in about 98 per cent. of the cases of tuberculosis.

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## A VETERINARY PESSARY.

BY R. DAWSON, M.R.C.V.S., WESTON-SUPER-MARE.

SOME TIME since, it occurred to my mind that a better arrangement might be made in treating cases of prolapsus uteri in our bovine patients, other than the old-fashioned method of sewing up the labia of the vagina.

The accompanying woodcut represents an instrument used by myself with success. It was made by Messrs. Arnold & Sons.

I find that it is necessary to tie *rather tightly*, by STRONG cords, from A A to a strap around the body of the cow, just in front of hind legs. This is kept in utero for ten days or a fortnight. It is necessary to select a short or long pessary, according to the size or breed of the patient, and this will also vary as the inflamed uterus advances towards its normal condition.

# THE PASTEUR SYSTEM OF PROTECTIVE INOCULATION.

BY G. J. R. RAYMENT, F.R.C.V.S., ARMY VETERINARY DEPARTMENT. PROFESSOR AND PRINCIPAL, BOMBAY VETERINARY COLLEGE.

THE following is the subject of a Report on Pasteur's System of preventing Anthrax, the result of observation while studying in his laboratory in Paris.

The disease know as Anthrax has been proved to be caused by a germ known as the Bacillus Anthracis, found in the blood of animals dead from this malady.

The organism is found under three forms :—

1st.—As rods in the blood.
2nd.—As filaments in artificial cultures.
3rd.—As spores.

1st.—The rods found in the blood are short, thick, non-motile bodies lying amongst the blood corpuscles, and easily detected on microscopic examination with sufficiently high powers.

2nd.—These rods sown in suitable mediœ broth, agar-agar, gelatine, &c., produce filaments ; long vermicular bodies frequently curled and interlaced one with another in the most curious manner. A few hours after the rods are sown in a liquid media, a slight turbidity is noticed in the fluid, followed by a whitish deposit on the bottom of the containing vessel, which increases as the cultivation progresses, and is composed of the filaments described. The superratant liquid becomes clear, and remains so unless shaken. The filaments, like the rods, are non-motile. If injected under the skin of a living animal, they produce rods. Filaments never occur in the blood.

3rd.—*Spores.*—As long as the rods in the blood have not access to the air, they are not capable of producing spores. But if a carcase destroyed by this plague be opened shortly after death, they spore rapidly. Filaments cultivated in artificial media in contact with air also spore readily. It is these spores which preserve the disease from year to year and age to age. Practically indestructible, they are capable of lying dormant in the earth for long periods, ready to germinate and produce the disease on the first available opportunity. Placed under the skin of an animal, they germinate into rods ; sown in broth, they produce filaments.

Rods and filaments are destroyed by a temperature of 60° C., alcohol, and privation of air.

Spores resist all these. For a short time even a temperature of 95° fails to render them inert. Exposure to a heat of 100° however, kills them at once.

The most favourable temperature for the cultivation of the bacillus anthracis is between 30° and 35°. At 42°-43° filaments grow rapidly, but will not spore.

One attack of Anthrax, if survived, confers immunity from a second. On this fact the whole system of Pasteurian vaccination rests. By cultivating the filaments in suitable mediœ, at a temperature of 42°—43°, it was found that their virulence was progressively attenuated according to the number of days they were retained under cultivation. Thus a fluid virulent enough to destroy the largest animal if injected on the first day becomes after a certain period so much attenuated as to be innocuous to a mouse. By taking a series of such cultivations, it was found possible to inoculate a sheep with a fluid which, producing hardly any appreciable constitutional disturbance, yet protected the animal from an inoculation of sufficient virulence to kill 50 per cent. of unprepared subjects; and this second inoculation rendered the sheep proof against injections of the most virulent virus, and therefore also conferred immunity from contagion by natural means. This first fluid is called First Vaccine, and the 2nd, Second Vaccine. The filaments of these two vaccines are incubated in suitable mediœ, and the resulting spores placed in glass vessels sealed by heat, and known as Seed Tubes. This process is conducted in the Pasteur Institute, and the seed tubes issued to laboratories for cultivation.

To prepare the vaccine fluid, the neck of the tube is removed and its contents aspirated into a capillary tube, care being taken to plunge the point of the latter to the bottom of the seed tube before aspirating, as the spores always form a deposit at this part. The aspirated fluid is then sown in three small flasks containing chicken broth. (For the manufacture of chicken and veal broth, *vide* Appendix A.) These three small flasks are then placed in an incubating stove or chamber (*vide* Appendix B) for three days, at the expiration of which they are withdrawn, being now ready for use. They are placed in a dark cool place, and each flask used for five days to sow large flasks of veal broth. So that three small flasks suffice for 15 days' supply. Each large flask is sown with five or six drops of fluid from a small one aspirated by means of a capillary tube. When sown, they are placed in

the incubator. Those meant for immediate use for three days only, while those intended for the manufacture of vaccine to be kept for some time are allowed to remain ten days. The former is known as *Recent*; the latter as *Ancient* Vaccine. From these large flasks, tubes with curved necks, into which fits an India-rubber plug, are filled by means of a pipette phial for despatch to persons applying for vaccine. These are called Vaccine Tubes, and contain sufficient fluid to vaccinate 100 sheep or goats, or 50 oxen or horses. Twelve days after the three small flagons are withdrawn from the incubator, a fresh seed tube is opened and three more sown in order to have another supply when the 15 days, during which the former have been used, have expired. Both the first and second vaccines undergo precisely the same process in preparation. All vessels containing the first are labelled with a red ticket bearing the words First Vaccine; those holding a second, with a blue ticket marked Second Vaccine. The flasks containing ancient vaccine are marked with a blue pencil line on the red ticket for the first vaccine, and a red pencil line on the blue for the second. There is sufficient room on these labels to write the date of sowing in the case of flasks, and for tubes the number of animals for which the contained fluid is intended. All vessels intended for the reception of vaccine or any fluid used in its preparation are previously sterilized by heat, and their orifices plugged with sterilized cotton wool, which, while allowing the passage of air, effectually prevents the entrance of any germ. The points of capillary tubes are always passed through the flame of an alcohol lamp before being plunged into any sterilized fluid or pure cultivation. The necks of flasks are likewise passed through the flame before their glass hoods are removed. Every possible precaution is taken to prevent the entrance of atmospheric or other germs. (For method of sterilizing glass vessels, *vide* Appendix C.)

Small animals, guinea-pigs, rabbits, &c., are vaccinated on the flank, ear, or lower abdominal parieties; sheep and goats inside the thighs; cattle on the neck or behind the shoulder. Harness horses behind and saddle horses in front of the shoulder. The first vaccine having been injected, 12 to 15 days are allowed to pass before further action is taken. This time is necessary for the first vaccine to thoroughly prepare the system for the reception of the second, which is then injected into the opposite thigh, or behind or before the opposite shoulder. Twelve days after this, should it be deemed necessary to test the efficacy of the vaccination, an injection of

virulent virus may be exhibited. If after the injection of the first vaccine much tumefaction at the point of inoculation or constitutional disturbance to an appreciable extent should supervene, it shows that the first vaccine is too strong, or the subject peculiarly predisposed to Anthrax. This is not uncommon in certain breeds of animals, while conversely others possess considerable powers of resistance to even virulent virus. Should animals die, or became very ill after the second vaccination, it shows that the first was too weak. If animals die of Anthrax between the first and second vaccinations, or within 12 days of the second, the vaccine should not be blamed. Such cases are the result of the disease taken in the natural way. If a flock, herd, or other assemblage or animals have the disease amongst them at the time of vaccination, it will not disappear until 12 or 15 days after the second injection, as this operation will not prevent the disease developing in cases where it is already in the system. In France the vaccination of horses is now almost abandoned, as it was found that alarming symptoms frequently supervened. In Belgium, Germany, and Austria no such sequellœ have been noticed, and equine vaccination has been freely practised. Cows in milk should not be vaccinated if it can be avoided, as the bacilli gain entrance to the milk, and render it dangerous unless previously boiled. In the ox tribe an appreciable constitutional disturbance and some tumefaction at the point of inoculation are occasionally noticed as a result of vaccination. Pregnant ewes should not be vaccinated, abortion frequently resulting. Lambs bear the operation well. The tumefactions when they occur, do not require treatment; they become absorbed in a few days. They should never be excised.

A Pravaaz syringe to hold one cubic centimetre is used to inject the vaccine fluid. The piston rod is graduated in eighths of a cubic centimetre, and by means of a runner the exact quantity required can be injected. Great care is necessary in filling the syringe, or air will gain admittance and derange the working of the instrument. After use it is sterilized in boiling water and refitted with new leather-washers. The dose for sheep and goats is $\frac{1}{8}$ cubic centimetre, or one division of the syringe. For horses, mules, camels, and bovines $\frac{2}{8}$ cubic centimetre, or two divisions. For elephants one cubic centimetre, or the whole syringeful. The Pravaaz syringes, though reputed to hold one cubic centimetre, are rarely quite true. They are tested in the following manner:—The syringe to be tested is filled, and the fluid ejected into a graduated

measure ten times : this should, of course, measure 10 cubic centimetres. If it measure 11, it may be used ; if 12 or 9, rejected—one being too large, the other too small. The vaccine tubes, as already mentioned, are supposed to contain only enough for a hundred sheep : this would be 12½ cubic centimetres ; but as the Pravaaz syringes are not homogenous, the vaccine tubes are made to hold actually 15 cubic centimetres in order to avoid the chance of there being insufficient.

Throughout the process of the manufacture of vaccine the most minute precautions are taken to prevent the entrance of any organism except the bacillus anthracis, but in spite of the greatest care, accidental contaminations frequently occur. The following organisms are usually the cause :—

*B. Subtiles*—Resembles bacillus anthracis. It is, however, motile, and forms a pellicle on the surface of the fluid.

*B. Termo*—Causes much turbidity. Motile.

*Les Mossissmes*—Flocculent white points, growing into white flocculent masses, forming after a time a thick pellicle on the surface.

*Les Traines*—Render fluid turbid. White lines on sides and bottom of vessel.

*Les Points Doubles*—Render fluid turbid, and show a white deposit on the bottom of the vessel.

When, by holding a vessel containing vaccine against the light, the slightest appearance of any impurity is shown, the contents must be submitted to most careful microscopic examination before being used. If, after this, the slightest doubt is still entertained, a few drops must be sown in a large flask of broth, and the vessel placed in the incubator for three days ; if only the filaments and spores can then be detected, it is a good proof of the purity of the fluid. If there be still doubt, a mouse should be inoculated if the suspected fluid be first vaccine ; a guinea-pig, if second. The inoculation will kill the subject in 48 to 60 hours, and the bacillus anthracis in rod form should be easily obtained in the blood of the heart or spleen. Should the suspected fluid be broth, it should be rejected. Recipients of vaccine should be warned to be most careful not to expose it to the chance of contamination. A vaccine tube that has come unstopped *en route*, or has leaked, should never be employed ; its contents should be thrown into boiling water. Once the stopper is removed, the fluid should be used as soon as possible. For instance, on no account

should a tube be employed morning and evening, or for two consecutive days. Any residual fluid should be thrown into boiling water.

Even if vaccine be kept perfectly free from all foreign organisms, after the lapse of a certain period of time it becomes weak and uncertain in its effects. To obviate this, vaccine over 15 days old, *i.e.*, over 15 days out of the incubator, is never used, any residue at the end of this period being rejected. The fresher the vaccinal fluid is, the better. An ideal system of vaccination would be one where the fluid could be used within 24 hours of its withdrawal from the incubator. This, of course, in large laboratories, where a supply must always be kept ready for immediate use, is practically impossible. Experience shows that vaccination—

With perfectly fresh fluid is uniformly successful.
With fluid 2 months old successful in 90 to 95 per cent.
" 3 " " 80 "
" 4 " " 75 "

As has already been remarked, the large flasks of vaccine are left in the incubating stove for different periods, some for three days, others for ten. That left for three days only, and called Recent Vaccine, contains filaments only, or an inappreciable number of spores. These filaments cannot live without oxygen, being aerobic. This they cannot obtain in vaccine tubes hermetically sealed by an India-rubber plug. They perish in a short time, and the fluid becomes inert. Hence recent vaccine is for immediate use on issue. The ancient vaccine left ten days in the incubator contains an immense number of spores, and these being capable of surviving any length of time without oxygen, the ancient vaccine retains its activity for long periods. For vaccine intended for despatch to distant places, a mixture is made of the recent and ancient, the proportion of ancient to recent being regulated according to the number of days likely to elapse before the fluid is used. The recent is much more certain in its effects, as filaments, being adult organisms, act at once, while the spores have to germinate before doing so. Hence the necessity of countries distant from France establishing laboratories for the culture of fresh vaccine.

Occasionally the virus of the spontaneous malady becomes so virulent that even duly vaccinated animals are unable to resist it. Under such circumstances, if the disease appears in a herd, flock, or other assemblage of animals within three

months of the completion of their vaccination, they are re-vaccinated with a mixture of the first and second vaccine in equal parts known as the vaccine of Revaccination. If after three months, they are vaccinated again in the usual way with the first, followed in 12 or 15 days by the second.

Spring is the most suitable period for vaccination, as the spontaneous disease rarely prevails at this time of year, and so less risk is run of vaccinating animals already incubating Anthrax.

Animals should be vaccinated every year, as experience shows that at the termination of this period after vaccination, only 60 per cent. are immune.

When the existence of disease is suspected, and no competent observer is on the spot, a rabbit should be inoculated with a few drops of blood from an animal quite recently dead, and sent to the laboratory. After the disease of the inoculated animal, an autopsy is made: and if the malady be Anthrax, the rods may be detected in the blood of the heart and spleen by microscopic examination with great facility. If, however, the inoculation be performed from a carcase dead any length of time, the vibrios of septicæmia will be injected into the rabbit, and the creature will perish of this disease. Of course under such circumstance diagnosis is impossible. The long motile serpent-like vibrios are easily differentiated from the Anthrax organism under the microscope. Another method of determining the nature of a suspected outbreak is to ask for the despatch of a small quantity of blood from a recently diseased animal for microscopical observation, cultivation, or inoculation, as deemed desirable. This blood must, however, be taken with the most minute precautions, as, if contaminated, it is useless. The following procedure should be adopted :—The carcase being opened as soon as possible after death, the heart or spleen is taken out, a portion of its surface cauterized with a hot glass or iron rod; the point of a sterilized capillary tube is then plunged into the viscus at this spot, a small quantity of blood aspirated, and the tube sealed at once at both ends in the flame. It is, however, a delicate operation, not likely to be performed successfully except by those trained to manipulate sterile fluids.

# Editorial.

## TWO CENTENARIES OF VETERINARY SCHOOLS.

WITHIN the last two months, two Veterinary Schools—that of Milan, in Italy, and the Royal Veterinary College, London—have celebrated the hundredth year of their existence, and each in its own characteristic fashion. The Italian School is a Government institution—has been so from the commencement—but it was not the first to be established in Italy, that of Turin having been commenced in 1769, with the distinguished veterinarian, Brugnone, who was a pupil of the illustrious Bourgelat, at Lyons, being its principal. From its beginning up to the present day, the Milan School has occupied a prominent position among the European establishments for the inculcation and promotion of veterinary science, and has had the good fortune to be presided over by a succession of talented and enthusiastic Principals or Directors, who have left imperishable records of their ability; the present Director, Dr. Lanzillotti-Buonsanti, being recognised as one of the most eminent veterinarians of the day, and a list of his works is sufficient evidence of his zeal and industry in forwarding Veterinary science.

The Centenary of this School was celebrated at the commencement of September, and invitations had been forwarded to every European Veterinary School and Institution, and to every recognised veterinary authority—at least three invitations having been sent to this country. The celebration was continued over four days, and the entire profession in Italy took an interest in, and shared in the festivities, while, not only were all the Italian Veterinary Societies invited and did attend, but representatives were sent from every Italian University; and nearly every Veterinary School in Europe, —except those of Great Britain—also sent representatives; while crowds of telegrams and letters conveying felicitations, as well as addresses to the same effect, occupied a large portion of the opening day in reading. Several high Government officials, notably the Minister of Agriculture, were present, and bore testimony to the great services rendered by the School during the century it had existed. There were two banquets—one given by the principal—scientific meetings, and a festival on the Lake of Como—everything, in fact,

that could be done was accomplished to mark the event, and to show the high estimation in which Veterinary science and its votaries are held. Not least among the efforts to render the occasion memorable, was the issue of a large handsome volume, containing a documentary history of the School, from its origin in 1791, and its present condition, written by its gifted Director. So that the Italians have reason to be proud of their Milan School and the way in which its Centenary was observed.

From the report which appears elsewhere, it will be seen that the Centenary of the London Veterinary College was celebrated last month, and in what we may consider a characteristic manner. It was merely a students' affair, to which a certain number of gentlemen—of whom a small proportion were members of the profession—were invited to meet the Prince of Wales, who had consented to be present, accompanied by the Duke of Cambridge. The members of the profession, perhaps one half of whom had been students of the School, were not asked to participate in the celebration, nor acknowledged in any proper way; and it was only after being reminded that there was the Council of the Royal College of Veterinary Surgeons in existence, that a supreme effort was made to invite some of them—the invitation cards, in some instances, only being received a few hours before the ceremonial luncheon was begun. It almost looked, as if—according to so many precedents—the profession was intended to be kept out of it. Of course the plea of poverty was advanced; but that cannot very well be maintained, as the profession was, we are assured, able and willing to have borne a large share of the expense necessary to celebrate the very extraordinary event in a manner befitting the occasion and the profession. As it was carried out, those who were the moving spirits in it deserve little credit for the narrow-mindedness or exclusiveness that prompted them to institute such a meagre display, which was only redeemed from absolute failure by the presence of the Royal Princes. When we consider how the affair should have been done—and could well have been done—a feeling of disappointment and regret arises at the thought of the position we were made to occupy. The Centenary of the School was, in a sense, the Centenary of the profession, and the existence of the profession should have been acknowledged. We cannot say that seeing a crowd of students eating and drinking was celebrating such an important event in a fitting manner; though, if one looks back through the hundred years that have elapsed, there is

little to be found in the history of the School that will raise enthusiasm. It has done little for Veterinary science, and still less for comparative pathology. For the greater part of its existence it has been so intensely practical, that it could not get much beyond side-bones, splints, spavins and curbs. During his whole official lifetime one of its Principals continually scoffed at the microscope as a scientific toy, and we have heard it said that he seldom read a scientific book.

In the world of science it has been nowhere, and as for professional literature, the less said the better. Notwithstanding its splendid opportunities for promoting Veterinary knowledge, it has remained the most obscure, perhaps, of all the European Schools. After the first few years of its existence it fell into a state of lethargy and somnolescence, in which it has remained immersed, up almost to the celebration of its Centenary, and mention of it on the Continent has more than once produced a smile of derision. We will not discuss the etiology of this morbid state, except to remark on the excuse so often put forward, that the School was not, and is not, a Government institution. It can only be replied to this that, free from Government control, it should have done all the better, had intelligence and enthusiasm in the cause of Veterinary science been provided. A heavy responsibility has rested upon the School, not only in the matter of tuition, but also as representing the highest aims of our calling. Government support would not, could not, avert that responsibility. And how has that responsibility been met? What example has the School given to its students? What views has it engendered, beyond those pertaining to the acquisition of money, during the hundred years it has been labouring to teach? Let us earnestly hope that the new century now entered upon may see the dawn of better days, and that the institution may be greatly more successful—not as a financial business, but as a promoter of sound scientific and practical instruction, and worthily representing Veterinary science in the largest metropolis in the world. And may its Bi-centenary be celebrated on a wider and more enlightened basis than its Centenary has been. By that time, it is to be hoped the one-man representation will have been abolished, and the profession will be able to muster several men to speak and act for it.

## RECENT FOREIGN INVESTIGATIONS OF SWINE DISEASES.

BY LEONARD PEARSON, B.S., V.M.D.

SEVERAL German bacterialogists have recently investigated the various contagious diseases of swine, and the group of bacteria to which the causes of these diseases belong.

Frosch, in an article in the *Zeitschrift für Hygiene*, Vol. ix., 1891, makes the following statements: "According to Salmon, there are two distinct contagious diseases of swine in America, which he designates as 'Swine-plague' and 'Hog-cholera.'" This conclusion has been denied by Frank Billings, who doubts the etiological value of Salmon's bacteria, and claims that a germ discovered by him is the cause of the American swine diseases; which he describes together, as one disease, under the name "Swine-plague."

In 1888 Von Esararch studied, in the Institute of Hygiene, in Berlin, the Salmon hog-cholera bacillus and found that Salmon's statements were in the main, correct. Frosch has now studied the Billing's swine-plague bacillus, cultures of which were sent to the Institute of Hygiene, by the discoverer, and finds it to be identical with Salmon's hog-cholera bacillus. The microbe described by Salmon as the cause of *his* swine-plague, is regarded by Frosch, on the other hand, as of accidental occurrence in chronic hog-cholera.

The entire article is quite long, but the author has thus concisely stated his conclusions:

1st. Salmon's hog-cholera bacillus and Billings' swine-plague bacillus are one and the same.

2nd. This germ is to be regarded as the cause of the contagious disease existing among the swine of America, while the proof of the existence of a second disease, of equal distribution, is not, as yet, established.

3rd. This germ is, further, identical with the swine-pest bacillus of Selander's (Denmark), but differs from the bacillus of the German swine-plague from that of Wildseuche (a contagious disease of deer, wild hogs, and cattle, which occurs in South Germany), chicken-cholera, rabbit septicæmia, and the ferret plague.

4th. Of those last mentioned, the bacterian of the ferret plague is the only one which possesses peculiarities sufficiently pronounced to enable its recognition from others. (*Berl. Thierarz. Wochs., No.* 27, 1891.)

Dr. Georg Caneva (Centralblatt für Bacteriologie und Parasitenkunde, Vol. ix., No. 17), studied the group of bacteria which have been classed together by Hueppe, as those causing hemorrhagic septicæmia. These are: hog-cholera (Salmon), swine-plague (Billings), swine-pest (Selander), "American cattle disease" (Billings), Buffalo pest Marseille's swine-pest (Jobert, Rietsch), and the ferret plague (Eberth). All of these bacteria agree in the following points: they liquify gelatine; do not form end spores; the poles may be stained with an aqueous solution of methyline blue but not by Graue's method; and there is a resemblance in form. Notwithstanding their apparent close relationship, the author found differences which enabled him to divide this group into three subdivisions.

The first includes the bacteria of Wildseuche, septicæmia of rabbits, swine-plague (of Germany) and Buffalo pest. These bacteria are characterised by lack of mobility, by the fact that they will not grow on potatoes, their growth on gelatine and on agar-agar is slow and sparse, they grow scantily on milk and kill rabbits in 1–3 days after the inoculation. The autopsy shows them to be present in the blood and distributed through the tissues.

The second division includes swine-plague (Billings), Marseilles swine pest (Epidemie des Porcs de Marseille), the "new American cattle disease" (Billings), and the ferret plague. These bacteria are distinguished by active mobility;

they grow rapidly on potato and form a thick layer, but differ among themselves in the color of the film. They grow rapidly on gelatine and agar-agar and, on the latter, with the development of gas. Cultures in milk, at the incubator temperature (37°C.), develop an acid which coagulates the milk, but does not cause the solution of its suspended particles. White rats and mice are not susceptible to these bacteria and, upon being inoculated, only show a slight local reaction at the point of operation. The bacteria may be found in the blood and in the form of small emboli, in the capillaries, but never in the tissues themselves.

The third division consists of only the hog-cholera (Salmon), and swine pest (Selander) bacilli. These are not exactly alike, but show so many points of similarity that it is difficult to separate them. Both are actively mobile; they grow rapidly and profusely on gelatine. They also grow on agar-agar, but without the formation of gas. They differ in their growth on potatoes, in that the swine-pest cultures resemble those of the typhus bacillus, while the hog-cholera bacilli forms a thick, whitish layer. Hog-cholera bacilli kills rabbits in from 4–8 days, and cause a reaction at the point of inoculation. Subcutaneous injections of the swine-pest bacilli, on the other hand, do not kill rabbits, but do white mice, in from 6–8 days.

Caneva's deductions from his experiments are: that Salmon's hog-cholera and Billings' swine-plague are two distinct diseases; that Billings' swine-plague and the Marseilles swine pest are, probably, identical; that, although Selander's (Denmark) swine pest and hog-cholera are closely related they are distinct diseases and, finally, that none of the above diseases coincide with the German swine-plague of Löffler and Schütz's. (*Zeitsch. für Vet. Kund.*, No. 4. Vol. iii., 1891.)

So far as the diseases of our swine are concerned, it will be noticed that the two investigators, above quoted, do not agree. It is, however, highly probable that they were not working with the same sort of material.

The following extract, from an article by Dr. E. Bunzl-Federm (*Archiv für Hygiene*, Vol. xii., Heft 2), throws some light on this point. This long article gives the results of the author's studies of the members of the septicæmia-hæmorrhagica group of bacilli, but since a review of it as a whole would occupy too much space, we shall only mention the portion that deals with the diseases of swine. Cultures of the swine disease bacilli were made in sterilized milk, of neutral reaction, to which a small quantity of a litmus solution had been added, to show fermentation at its beginning, and on potato. Bacilli of swine-plague (Billings), and hog-cholera (Salmon), both grew in the sterilized milk, turning the litmus faintly red, in the first two days, but intensively blue in from eight to ten days. After seven months the milk had so evaporated that it formed a gelatine-like mass, of alkaline reaction. Both of these bacilli formed brown films on potatoes. The German and Marseilles swine pests, on the contrary, developed an acid in the milk cultures.

From these and other experiments the deductions drawn are:

1st. That the swine-plague germ first cultivated by Billings does not agree with the description of that micro-organism.

2nd. That Salmon's hog-cholera bacillus and the last swine-plague bacillus cultivated by Billings are, biologically, identical.

Detailed experiments lead him to divide the contagious swine diseases of the world into three classes, as follows: 1st. German swine pest and wild-seuche; 2nd. Swine-plague, hog-cholera and Danish swine pest; 3rd. Marseilles swine pest.

These diseases differ in their specific causes; which, in spite of their strong similarity, may be differentiated biologically in their symptoms and in their geographical origins.

Bunzl-Federm believes that the future will develop methods for diagnosing

the doubtful cases of swine diseases by means of the cultures and biological peculiarities of their bacteria. The gelatine cultures enable one to distinguish all three of the above diseases from erysipelas (*Rothlauf, rouget*) or anthrax. Milk cultures distinguish the American swine disease from the Marseilles and German, in that the first develops an alkali and the last two an acid. A microscopic examination suffices to separate the last two forms, for the bacilli of the French pest are actively mobile, while those of the German have no motion. (*Berl. Thierârz. Wochs., No.* 29, 1891.)

From these, and other articles, it is quite clear that the most prevalent opinion in Germany, at the present time, is that there is but one swine pest in America; that is, that hog-cholera and swine-plague are the same.

Variations from this view probably rest upon experiments with those cultures of Billings' swine-plague bacillus first sent to Europe, by this investigator; which did not, Bunzl-Federn says, agree with their description, and were not the same as those sent at a later date.—*Journal of Comparative Medicine and Veterinary Archives.*

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## GLANDERS AND FARCY IN GREAT BRITAIN.

THE Annual Report of the Veterinary Department of the Board of Agriculture says.—Both these forms of disease were less prevalent in Great Britain last year than in the preceding one. Returns relating to glanders were received from twenty-three counties last year, the same number as in 1889, viz., twenty in England, one in Wales, and two in Scotland. The number of fresh outbreaks decreased from 686 in 1889 to 538 last year, and the number of animals attacked fell from 1,210 to 947, a decrease of more than 21 per cent.

Of these 947 animals affected with glanders last year, and one remaining alive at the end of 1889, 942 were killed and six died.

With reference to the distribution of these outbreaks and cases of glanders in Great Britain, 532 of the outbreaks and 900 of the animals attacked were in England, one outbreak and one animal attacked in Wales, while in Scotland there were five outbreaks and forty-six animals affected.

It will be seen from these figures that London and the counties immediately surrounding it are, and have always been, the chief centres of this disease, more especially London and the county of Middlesex, in which over 88 per cent. of last year's outbreaks in England occurred, and no less than 92 per cent. of the animals were attacked. It seems very strange that Lancashire and Yorkshire, with their large towns in which horses are kept and worked in much the same way as they are in London, should be so free from this disease. In Wales glanders does not seem to have a permanent existence, and in Scotland the only permanently infected centre is Lanarkshire, in fact Glasgow. The total number of animals attacked last year was 861, a decrease of 175 from the number attacked in 1889; 860 of those attacked were in England and only 1 in Scotland. Of these 861 horses attacked with farcy last year and 5 others remaining alive diseased at the end of 1889, 835 were killed, 8 died, 17 recovered, and 6 were still alive at the end of the year.

Two striking examples of the enormous loss caused by glanders and farcy when they become fairly established in large studs occurred in London last year. One company owning a large stud lost no less than 235 horses from these two diseases in the course of the year, while another lost 214; the money loss from this cause alone to these two companies last year could not have fallen far short of £4,000 each.

## RECENT EXPERIMENTS WITH THE INJECTION OF KOCH'S LYMPH IN CATTLE.

BY A. KÖPP.

THE experiment extended over a herd of 1,058 animals, which, by every known means, had previously been kept free from disease, and which were, in each case operated on, looked upon as healthy. The conclusions arrived at were as follows :—

1. The injection of Koch's lymph is, in the majority of cases, an infallible means for the diagnosis of tuberculosis in cattle; and, indeed, when the increase in temperature is *typical*, there can be no possible doubt. Where, however, the temperature does not begin to increase in this *typical* manner, and a decision cannot be arrived at at once, such animal must be subjected to a second injection.

2. The amount of the increase of temperature gives no kind of clue as to the extent and severity of the tuberculosis processes, as the milder cases are often marked by the same elevation as those which are more intense.

3. A *typical* reaction is marked by the following: After injection, and just before the commencement of the rise, there is a *fall* in temperature under the normal, which is soon followed by a fairly rapid rise (9–14 hours after injection) to its highest point, and then, after more or less wavering, a descent (after 24–48 hours) to normal.

By the application of this method of investigation, one is placed in possession of a successful means of subduing tuberculosis, and it will prove to us to what extent the disease can exist without either the veterinary practitioner or the owner himself having any idea of its presence.

In a large dairy in the neighbourhood of Dorpat, in which for many years, with much expense and by all practicable methods, it had been attempted to extirpate tuberculosis, but in vain, it was found, by injection with Koch's lymph, that over 50 per cent. of the cows were affected, although by their appearance and condition generally they were to all intents and purposes quite healthy.

Conclusions arrived at by Dr. R. Arndt, of Schweidnitz, County Veterinary Inspector, with reference to recent experiments with Koch's lymph :—

1. Inoculation with Tuberculin Kochii in tuberculous animals calls forth a typical reaction, which, in the majority of cases, shows itself by a long-continued elevation of the temperature, in from 10 to 12 hours after inoculation.

2. As the temperature varies considerably in different animals, it is necessary to find the normal, and until there is an increase of from 1–2 degs. Celsius, above such point after inoculation, a true "reaction" cannot be considered to have taken place.

3. It is not probable that healthy animals will show any reaction after a medium dose of tuberculin carefully injected.

4. By repeated incorporation of small doses of tuberculin into the system, the animal becomes inured to it.

5. Inoculation of tuberculin in animals suffering severely from tuberculosis aggravates the disease.

The above conclusions are the outcome of the experiments of two independent investigators.

E. E. BENNETT.

## THE SHOEING OF HORSES FOR MILITARY PURPOSES.

BY GEORGE FLEMING, C.B., LL.D., F.R.C.V.S., PRINCIPAL VETERINARY SURGEON.

*(Concluded from page 282.)*

Mr. QUERIPEL (Army Veterinary Department): I feel sure you will all agree with me when I say that we have listened to a most interesting and instructive lecture from Dr. Fleming—interesting because the question of shoeing must always be one of the greatest interest to everybody connected with the mounted branches of the service; for what use would it be to have a good lot of horses, or if those horses were in good condition, if our system of shoeing were bad? Instructive, I say, because the lecturer has brought very forcibly before us a new system—if I may call it new—a system of cold shoeing, which is now generally adopted in the cavalry. Five years ago, when in Dublin, serving under Mr. Walters, I had the opportunity of trying cold shoeing as an experiment in the Army Seryice Corps. The work of this corps in Dublin is hard, and moderately fast, and is over macadamized roads and pavements. What did we find? We found the shoes not only wore well, but were seldom lost. I think that then I was fully justified in predicting a grand future for cold shoeing. Years passed, and I had no opportunity of testing the system again, but when the opportunity did return it was on a very extensive sale. During the whole of the last drill season, while officiating as Inspecting Veterinary Surgeon, of the Aldershot Division, I had six cavalry regiments, the shoeing of which I supervised. I could watch carefully the shoeing in all those regiments, and I can confidently say that no system could possibly have worked better. I could perhaps have spoken to-day from my own observations, but I had no certain data to go on. I could only have generalised, and therefore I thought it advisable to ask for some statistics with reference to the loss of shoes. Colonel Verelst, commanding the 11th Hussars, wrote to me that, including marching from various out-stations to Dublin, and from Bristol to Aldershot, going through the whole set of manœuvres at Aldershot (and I may say that a drill season at that station includes fast work and hard work, often over rugged ground which would test any system of shoeing), he says, "No system of shoeing I have tried before has ever answered so well as this has done, and I am bound to say that from the 20th of June to the 9th of October, whilst we were doing such hard work, my regiment only lost forty-three shoes," that is, 10 per cent., reckoning one shoe to each horse. The 16th lost about thirty during the three months, and the 19th about the same, an average of four or five per troop. But there is one point with reference to the 19th I would like particularly to bring to notice, and that is that one troop during the whole drill season lost but three shoes. Now it is not because this certain troop had good feet (perhaps the feet were in good condition because the farrier was a good one), but if one troop could do that, why could not it be done generally through the service? And I maintain that if the farriers and the assistants will only see that broken nails are replaced, and that the clenches are down before the troop starts away, very few, if any, shoes will be lost. I wish particularly to lay stress on this point, because Colonel Graves, in the discussion on a lecture delivered by Mr. Walters a fortnight ago, said that a very large number of shoes were lost by his regiment at Handoub, and, if I gathered rightly, I think he attributed it to the fact that the clenches were rasped down for the purpose of making them look better. I think the cause must be looked for elsewhere, because I have never seen clenches rasped down in this way, and not only that, but if they are, it is against the regulations. I think the cause must be looked for in the very peculiar ground over which the 20th

had to travel. There is no doubt that they had to work over ground that tore the shoes off. There is one more point I would like to mention, and that is the issuing of shoes in time of war. To make this system a success it is of paramount importance that all those who are connected with the issuing of shoes should be thoroughly acquainted with the number of sizes of shoes and the nails that should be issued with them. Now we all know the multifarious duties that devolve upon the Ordnance Store Department in time of war, and I ask, is it feasible to expect that everyone in that Department should have a knowledge of horse-shoes and nails? I say, no; therefore I would strongly recommend that an Officer of the Veterinary Department should be attached to the Ordnance Store Department, in order that he might be held responsible for the issuing of these stores. I know perfectly well how shorthanded we are in time of war, and perhaps an Officer could not be spared, but still there is always an Officer at the base to issue veterinary medicines, instruments, etc., and the issue of shoes and nails might also form a portion of his duties. It would obviate what occurred during the River Column of the Nile Expeditionary Force, 1884–85. I was in veterinary charge of this column, and attached to it was a squadron of the 19th Hussars. I at once set to work to make myself acquainted as to whether they were well supplied with shoes and nails, and you may judge how horrified I was to find that they had brought 6 shoes and 200 nails per troop, 12 shoes and 400 nails for a squadron, perhaps for three months' work. The shoeing, therefore, of that squadron was always the source of the greatest anxiety to me. There I saw those plucky little Syrian ponies, not more than 14 hands high, carrying heavy weights, galloping over solid rock without a shoe on their feet. Of course this want of shoes had to be accounted for, and the Veterinary Officer, in his final report on the splendid work done by the horses of this regiment, said that he had asked for 400 sets of No. 1 shoes to be issued, but that they were not forthcoming. At the last moment locally-made shoes and nails were given, but they were so thoroughly bad, being too large and the nails also, that they were handed back to the Ordnance Store Department on the first possible occasion. I can only add one thing in conclusion, and that is, that I shall hail the day with delight when I see this system of cold shoeing generally adopted throughout the service, for I am perfectly certain that those corps who do not adopt it in time of peace will fare very badly in time of war, for the great advantage of this system is that it assimilates the system in time of peace to that in time of war, and therefore makes everybody connected with shoeing acquainted with the duties that they will have to perform on active service.

COLONEL COLVILLE: I should like to ask whether since the introduction of these shoes more horses have been pricked, whether they have suffered in a greater percentage from quitters, because it is maintained by some that where you have fullard or bevelled shoes you cannot direct the nail with the same accuracy into the hoof, and that consequently there are more pricks. Has Dr. Fleming any experience on that point?

The CHAIRMAN (Sir B. Walker): I am sorry that I cannot see a cavalry soldier on his legs. One would almost have thought, after a lecture like this, we should have got somebody up to give us their experience. A more important lecture as regards that branch of the Service could hardly have been given. To-day, as I read over the lecture, I thought of the old story which was told, I believe with perfect truth, of 1848, when a timorous Minister rushed to the Duke of Wellington to tell him that 100,000 Chartists were going to march from Birmingham on London, and dictate terms to the Government. The only remark that the Duke allowed himself was a grunt, "Who is going to find them in shoes?" I think we may say the very same of our mounted services, cavalry and artillery, and I am very sorry that so

few of those who might profit by the lecture have been here to-day to listen to it, and have left it to an old fossil like myself to say a few words on the subject. A great many years ago, when I was a Captain of cavalry, I was brought into communication with a gentleman named Miles, living in or near Exeter, who taught me instead of using seven or eight nails to use only five. I was very much impressed with what Mr. Miles said, and although I did not agree with all his theories, I adopted the system of shoeing with five nails. I had a very good farrier in my troop, and there was a particularly good farrier-major in the regiment. I hardly like to say what my memory suggests to me. I hunted for five consecutive winters in Ireland. I did not ride very light, and always rode pretty hard, and I only remember one occasion on which I lost a shoe. I took my horses out to the Crimea, where I still shod with five nails, and I perfectly remember during the short time I served with the cavalry there I only lost one shoe. Therefore, as far as my memory carries me, shoeing with five nails, shoeing with great care, which was necessary with the fewer number of nails, gave results which we certainly could not have previously looked for. I was in hopes Dr. Fleming would have told us something about nails, and I think he told me before we came into the room that at present they shoe with only four nails, and that the change is successful. I think that is a most valuable fact. There is no doubt that the late barbarous system of driving an immense number of nails into the horse's foot was most hurtful. And another barbarity of my early days with horse-masters was that the frog was always cut away in a *beautiful* manner. As well as I remember, I never allowed my farrier to use anything but a pair of scissors; he was never allowed to do more than trim off the rough edges. I do not know whether Dr. Fleming will support me in that. I think we have had a most instructive lecture. Most of the speaking has been, I might almost say unfortunately, from those who agree with Dr. Fleming, and I should have been certainly happier if we had had one or two speakers from those who do not altogether agree with him, because we should probably have drawn from him even more valuable observations than we have had in the lecture. I certainly do not differ with him. I entirely agreee with him in all that he has said, and I must confess that I have seldom read, having much interest in this very subject, a more valuable and profitable lecture than the one we have just listened to. Dr. Fleming will answer some of the remarks that have been made, and he will then show and explain to those who take interest in the matter some of the instruments that are on the table. But I am confident that I am justified in asking you to empower me to tender to him a very sincere vote of thanks for the lecture he has given us.

Dr. FLEMING: The replies which I shall have to make to the remarks will be brief. The necessity for horses wearing leather soles has been mentioned. There is not a horse in the British Army shod with leather soles, simply because it does not require them. If the horse's foot is left in its natural condition unmutilated, it requires no artificial sole; and if the frog is left uncut and sound and strong, no protection for it is required. No doubt india-rubber will, to some extent, prevent slipping, as the horse's frog itself will; but it must be remembered that on asphalte and wood in certain conditions that substance will not do so. When there is a layer of greasy mud on such pavement you must have something to bite through it, or you will have slipping. A horse shod with india-rubber, if the pavement is slippery but clean, will not slip. Besides, india-rubber will not answer for draught horses. Horses which have to move heavy weights must have a firm grip of the ground. And I may remark that there are no horses in the three kingdoms worse shod, with regard to slipping, than those in the streets of London. If you go to Glasgow, Manchester, Newcastle, any one of our large cities, you will find their horses more reasonably shod, draught horses especially;

these have projections on the ground-surface of the shoes in order to bite the ground. Nowhere out of London, perhaps, will you see horses labouring under the same painful conditions in moving loads that you will here. I therefore think the farriers of London, although they have a Farriers' Company of great antiquity, are greatly to blame for allowing horses to travel on slippery streets with shoes perfectly smooth on the ground surface: in fact, nothing could be better devised for facilitating slipping than the shoes the horses wear. For cavalry and for a horse which has to travel on slippery roads or ice, it is necessary to maintain surety of footing, and especially for those that have heavy weights on their backs or to draw, you must give the shoe rough sharp surface, such as we obtain by short projections from the shoes. We have found that out, and therefore our aim in the Army has been to give the shoe such a grip. We allow the horse to work with an ordinary shoe when there is no slipperiness, but provide every horse with means for enabling it to travel with safety when there is. The great object has been to introduce something which is at once simple, effective, and cheap. Anything which is complicated, like this shoe of Professor Domenick's, which is here before you, which has been used in the German Army, will not answer. This is a very cumbersome piece of mechanism; it will gather snow and retain it, and it requires a special shoe to fit it, while it is very heavy. I do not know that anything simpler has yet been devised than the system which is now introduced into our Army. Every soldier, on commencing a march in winter, can put a few pegs in his pocket, and he is secure against the weather. At Chatham, many years ago, the transport used to leave the garrison with ammunition for Gravesend, Maidstone, and Sheerness. The men had a few pegs with them, and were absolutely independent of the weather. We had some very severe winters then, but the men had no accidents. When the roads were slippery, they dismounted, cleared out the holes in the shoes, put in the pegs, and started on their journey. That is the kind of winter shoeing we want. Whenever you come to apply india-rubber shoes, or make a composite shoe of any kind, you have a great deal of trouble. In the first place, the farriers in London will not put on such shoes. Civilian farriers generally belong to Unions, and anything likely to interfere with their business they will oppose. Not only that, but when you come to put india-rubber, wood, or other material in the body of the shoe, the shoes will be very insecure on the horse's feet. The material, being soft, will not retain the nails, I have tried almost everything which has been invented, and have always had to fall back upon the old-fashioned nailed shoes. Shoes which are adjustable or fastened without nails have hitherto proved a failure. They have been tried for the last fifty years at different times; I have tried several myself, but they have all been very cumbersome, sometimes dangerous and very expensive, or very apt to lame the horse. After all our experience, we come back to the old fastening with nails. I may remark that the man who invented horse-shoeing was one of the world's great benefactors. He must also have been a bold man; because, to drive a nail into a horse's foot, without understanding the anatomy of that organ, must have been a very hazardous experiment. The immense value that shoeing has been to the human race entitles the inventor of Horse-shoeing to a large amount of gratitude from us. With regard to horses being pricked in shoeing, such a thing is all but unknown in the British Army. The horses are allowed to retain their feet in a natural condition. So strong are the hoofs that we can teach an amateur quickly to shoe a horse in a few minutes and without accident. I think from year's end to year's end we do not have a case of injury in shoeing, judging from the reports which reach my office. But if the hoof is cut away and scarcely any horn is left, then it requires a very skilled workman to shoe a horse, and there is great danger of the animal being pricked. Yet

such a thing as a horse being pricked in shoeing should be one of the rarest events. I think there are 15,000 horses in the Army at home, and I do not think in any reports that we shall find a single case of a horse pricked in shoeing. I am extremely sorry that some of the mounted corps Officers are not here to assist us in the discussion, because the opinion of those either for or against the new system would be valuable. It has had a great amount of opposition to overcome, but I am glad to say, so far as the cavalry is concerned, that opposition has entirely ceased. Cavalry officers see the advantages of the system; and I think some of its very warmest advocates are to be found in the cavalry. I trust it will be found the same in the artillery and the other mounted corps. The supply of farriers in the field is a most important business, for in all the expeditions of which we have records, and those in which I have been myself, the farriers have been the first men to succumb to the fatigue of the campaign. Not only that, but by some bad luck in action they get knocked over in a most extraordinary manner. For instance, the 19th Hussars, in the action of El Teb, left two farriers on the field out of a very small number. Farriers are always coming to harm, therefore, unless we have an excess force beyond the actual requirements of the corps, we shall be in a bad fix. This number of extra men to be taught has been fixed at 10 per cent.; if these men go into the Reserve and others are constantly taught, in future campaigns we shall have no difficulty whatever in meeting all the demands for shoeing—we shall have a large number of men in the ranks able to shoe—the number, in fact, will be so large that it will be pretty well equivalent to every man being able to shoe his own horse. I do maintain that a man who rides, or who owns a horse, ought to know something about horse-shoeing. Every man who has to ride a horse day after day, and whose life may depend upon its efficiency, should know how to shoe the animal. I am a strong advocate for every officer being able to shoe a horse. I will not venture to detain you longer, but return you my hearty thanks for your patience in listening to my lecture.

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## NEW DESIGNATIONS FOR ARMY VETERINARY SURGEONS.

As will be seen in the Army Veterinary Department News, a Royal Warrant has been issued, by which the designation of Veterinary Officers is changed. This alteration inevitably follows that which took place in the Army Medical Staff some time ago, in which the rank of the officer was added to his professional title, so that his *status* in the military hierarchy—if the term may be so employed—might be more readily known. Instead of Principal Veterinary Surgeon, Inspecting Veterinary Surgeon, First-Class Veterinary Surgeon, and Veterinary Surgeon, these are now graded as Veterinary-Colonel, Veterinary Lieutenant-Colonel, Veterinary-Major, Veterinary-Captain, and Veterinary-Lieutenant, as in the Russian and Italian armies. It is a matter for regret that the medical branch of the service was not copied still further, and the Veterinary Department re-named the "Veterinary Staff," as this does not clash with the Co-operative Store or Outfitters' businesses in the matter of branches. The new titles are more convenient than the old, and while marking the position of the officer do not mislead, as the extent and limits of his sphere of usefulness are indicated by the professional prefix. The Principal Veterinary Surgeon is now to be designated Veterinary Colonel, and his function is that of Director-General of the Department.

## SWINE FEVER IN GREAT BRITAIN.

THE returns of this disease received by the Board of Agriculture during the past year show an increase in Great Britain as compared with those of 1889, although still below the returns of 1888 and three preceding years. The area over which it was distributed was increased by the addition of three more infected counties, while the number of fresh outbreaks increased from 4,841 to 5,076, or a little over four more outbreaks per week throughout the year, and the number of pigs attacked rose from 25,885 to 29,092, an increase of 3,207, or more than sixty-one per week on the average.

The following table shows the number of counties infected with swine-fever in Great Britain, the fresh outbreaks, the swine attacked, and how they were disposed of for each of the twelve years that it has been included as a disease under the Contagious Diseases (Animals) Act of 1878.

SWINE FEVER IN GREAT BRITAIN, 1879-1890.

| Year. | Number of Counties Reported from | Number of Fresh Outbreaks. | Number of Swine Attacked. | Diseased Swine. | | | |
|---|---|---|---|---|---|---|---|
| | | | | Killed. | Died. | Re-covered. | Remain-ing. |
| 1879 .. | 53 | 2,765 | 17,074 | 13,643 | 3,416 | 124 | 99 |
| 1880 .. | 50 | 1,936 | 9,865 | 7,961 | 1,940 | 23 | 40 |
| 1881 .. | 56 | 1,717 | 7,994 | 6,217 | 1,781 | 24 | 12 |
| 1882 .. | 56 | 2,983 | 14,763 | 11,903 | 2,799 | 18 | 55 |
| 1883 .. | 53 | 2,400 | 11,225 | 8,950 | 2,257 | 32 | 41 |
| 1884 .. | 54 | 1,877 | 8,939 | 6,364 | 2,372 | 153 | 91 |
| 1885 .. | 70 | 7,926 | 38,798 | 27,478 | 9,919 | 1,375 | 117 |
| 1886 .. | 63 | 6,813 | 35,029 | 26,745 | 7,438 | 745 | 218 |
| 1887 .. | 71 | 7,238 | 41,973 | 24,831 | 14,502 | 2,332 | 526 |
| 1888 .. | 69 | 6,449 | 32,241 | 16,111 | 13,288 | 2,856 | 512 |
| 1889 .. | 61 | 4,841 | 25,885 | 13,188 | 10,782 | 2,160 | 267 |
| 1890 .. | 64 | 5,076 | 29,092 | 12,844 | 12,785 | 2,999 | 731 |

From the above figures it will be seen that the returns for the past year are higher than those of the preceding one, but lower than those for the years 1885-1888, but still much above the returns for 1879-1884, when the disease reached its lowest record, as the result of the restrictions imposed on the movement of animals on account of the existence of foot-and-mouth disease in the country.

The most noteworthy features of last year's returns, and those, too, which threaten serious impending consequences in the shape of a considerable extension of the disease, are the small proportion of the diseased swine slaughtered, only a little over 44 per cent., the large proportion allowed to live until they died, or made a more or less doubtful recovery, amounting together to over 53 per cent., and the large number of diseased pigs remaining alive at the end of the year, viz., 731, or over 2·5 per cent. of the whole number attacked during the year.

The keeping alive of so many diseased pigs means probably a still greater increase in the number of outbreaks of the disease.

Every diseased pig while alive is constantly reproducing and throwing off the infected virus in sufficient quantity to infect hundreds of other pigs, and therefore the sooner diseased swine are killed the better. It seems false economy to keep diseased swine alive when so few recover; only 2,999 out of 15,784, or about 19 per cent. of the diseased swine which were not killed recovered last year, and out of 96,120 diseased swine not slaughtered during the past 12 years, only 12,841 recovered, or about 13 per cent., and many of these would, after recovery, be of little value, while the mischief they might do in spreading disease is incalculable.

Swine-fever was last year, as it always has been, much more prevalent in England than in Wales or Scotland. Only two counties in England—viz., Cumberland and Westmoreland—were free from the disease last year; in Wales four counties were free from swine-fever—viz., Cardigan, Carmarthen, Merioneth, and Radnor; while in Scotland it existed only in nine counties.

The increase in the number of outbreaks of swine-fever last year in Great Britain occurred in England and Wales, but there was a decrease in Scotland; the increase in England was 92, in Wales 153, while there was a decrease of 10 in Scotland. With regard to the increase of 3,207 in the number of swine attacked, there was an increase of 2,773 in England, 378 in Wales, and 56 in Scotland. The swine-fever returns of last year, taken as a whole, are far from satisfactory, the small number of diseased swine killed and the large number which died shows that local authorities generally did not deal promptly with the reported outbreaks of this disease. In many districts the number of diseased pigs which died exceeded very considerably the number killed, and the number of recovered and diseased pigs remaining alive at the end of the year shows that a large proportion of them were allowed to live and spread the infection.

With regard to the 731 diseased swine remaining alive at the end of the year, 707, or over 96 per cent., were in England, distributed in numbers varying from one up to 203 over twenty-five counties, seven were in two counties in Wales, and seventeen in one county in Scotland.

## BOMBAY VETERINARY COLLEGE.

We learn that Veterinary-Captain Rayment has been compelled, through ill-health, to resign the principalship of this school, and has been succeeded by Veterinary-Captain Mills, who, we trust, will be able to maintain his health and vigour in order to carry out the onerous duties pertaining to the office. Parel, the district in which the school is situated, bears a very bad reputation, because of its insanitary condition, and the evidence is certainly strong. Steel, Pottinger, Sergeant-Farrier Stanley have all died from abscess of the liver contracted there, and Mrs. Stanley has succumbed to fever, and two Parsi hospital attendants from dysentery—all since August 3rd, 1885.

## TUBERCULOSIS OF DOMESTICATED ANIMALS.*

BY J. M'FADYEAN, M.B., B.SC., F.R.S.E.

### The Bacillus Tuberculosis.

The micro-parasite that is the cause of Tuberculosis belongs to the class of bacilli, and it is one of the smallest of its kind yet known. It has the form

* Read at the Annual Meeting of the National Veterinary Association, held at Doncaster on July 21st.

of a slender rod, the average length of which is about half the diameter of a red blood-corpuscle. The length of the bacilli is much more variable than their breadth, and it is not rare to find individual rods as long, or even longer, than the diameter of a red corpuscle. The shorter rods are often straight, but the longer are generally slightly curved. The ends of the bacilli are rounded, and their substance is sometimes uniform or homogeneous in appearance. Occasionally some of the bacilli, when stained, present a beaded aspect, almost as if they were composed of a series of spherical or coccus-like elements; and still more frequently the stained rods show at intervals small unstained specks. The shorter homogeneous rods are probably young, actively-growing elements, but the exact signification of the beaded and interruptedly stained forms is doubtful. It is very probable that the unstained specks in the substance of the longer rods are in many cases spores, but it is also possible that somewhat similar appearances may be due simply to degenerative processes in the bacilli. The tubercle bacilli are immobile.

The modes of grouping of the tubercle bacilli in the tissues are variable, but they are never found in the form of long chains, and it is rare to find even three rods joined end to end. Frequently the rods are scattered singly and irregularly, but very often, also, they are collected together in groups that are very characteristic. The most common mode of grouping is that assumed by the bacilli when they are contained within a giant cell. Here the bacilli are usually found at the periphery of the giant cell, and the majority of the rods have a radial disposition. In the horse it is not rare to find a mode of grouping that appears to be the precursor of the before-described radiate arrangement. Here the giant cells are filled with bacilli, and indeed, in many cases, the body of the cell is mainly composed of these organisms. When stained, such a cell presents itself as a ball-like mass of bacilli, and the radiate disposition is not so distinct. Probably at a later stage the bacilli in the centre of the cell degenerate and die, and thus there is produced the marginal and radiate mode of grouping so frequently encountered in giant cells of the ox and pig. Another and very common mode of grouping is that in which the bacilli are arranged like a bundle of faggots. This is very common in the horse and in the carnivora. Lastly, in Tuberculosis of the common fowl there is found a mode of grouping that is quite peculiar—the bacilli, which are frequently very long and much curved, forming irregular masses of a size that is seldom or never met with in the mammalia. This and other differences recently brought to light make it not improbable that the avian bacillus is a different organism from the bacillus of mammalian Tuberculosis.

The bacilli are found both in and between the animal cells, and in this respect no important difference is to be made out between the different animals that are the subject of Tuberculosis.

Nothing is more variable than the number of bacilli present in tuberculous lesions. That is a fact known to everyone who has had much experience in staining for the tubercle bacillus, whether in cover-glass preparations or in sections. To those who have only a theoretical knowledge of the subject, it is very natural to suppose that since Tuberculosis is now defined as the disease caused by the tubercle bacillus, and since that bacillus possesses characters that distinguish it from every other known parasite of the lower animals, it must in every case be easy to determine *post-mortem* whether a given lesion is tuberculous or not. But, as a matter of fact, there occur cases of Tuberculosis in which very prolonged search is necessary to discover a single bacillus; and while this applies specially to some species of animals, particularly the pig, it is probable that in every species the number of bacilli present in individual cases, or even in different lesions in the same animal, is very variable. In my experience the bacilli are most numerous in the horse

and cat, but in both of these species I have encountered cases in which the demonstration of a single bacillus was a matter of difficulty.

It is by no means easy to discover what is the cause of this extreme variability in the number of bacilli present in tuberculous lesions; but where, as is sometimes the case, one cannot find even a single bacillus in a tubercle that has already attained the size of a small pin's head, it must be assumed either that the presence of a very few bacilli—perhaps of one only—may excite the formation of a tubercle containing thousands of cells, or that the bacilli may disappear from a tubercle, either by total destruction through the agency of the cells, or by resolving themselves into spores.

It hardly requires to be pointed out that the point just alluded to is of considerable practical importance. If in every case of Tuberculosis the specific bacilli were as numerous and as easy of demonstration as the bacilli of Anthrax in cases of that disease, then the practice of staining for the tubercle bacilli as a means of diagnosis in connection with meat inspection would long ere this have become general. Such, however, is not the case, and in the vast majority of the cases of Tuberculosis, the macroscopic and microscopic characters of the lesions are so distinctive as to render the demonstration of the bacillus quite superfluous. This statement, however, must be modified when one takes into consideration the different types of lesions in Tuberculosis of different species; for, as will be afterwards pointed out, the macroscopic and microscopic characters of tuberculous lesions are far from uniform in different species. For example, the pathological picture presented by a case of Tuberculosis in the horse or cat is often very different from that with which we are familiar in the ox, and hence the demonstration of the bacillus in the former species may be necessary to convince those who deny the identity of the diseases because the nature and distribution of the lesions are different. When the presence of the tubercle bacillus is demonstrated the matter is settled; but because in any given case no bacilli have been discovered in several preparations examined, it by no means follows that that case is not one of Tuberculosis; and this is doubly true when the examination is conducted by someone of little experience.

The size, shape, mode of grouping, and relationship to the cellular elements of the part would in many cases enable an experienced bacteriologist to recognise with but little possibility of mistake the bacilli of Tuberculosis, but the most valuable characteristic of the bacilli is their behaviour when treated with certain staining reagents. This peculiarity of the tubercle bacillus is well brought out when we compare it with, for example, the germ of Anthrax. When that bacillus is treated with an aqueous solution of one of the aniline dyes, such as gentian violet, it stains almost instantly. Such a solution, on the other hand, requires many hours to penetrate into the bacillus of Tuberculosis. That, however, is only one-half of the peculiar staining reaction of the tubercle bacilli. When the stained Anthrax rods are treated with even a very dilute solution of one of the mineral acids in water, they readily become decolorised; but when once, by prolonged exposure to the staining fluid, the bacilli of Tuberculosis have been completely stained, it is a matter of some difficulty to extract the colouring matter out of them. For example, a section of tubercular tissue in which the bacilli have been fully stained may be left for several minutes in a 30 p.c. aqueous solution of one of the strong mineral acids without depriving the germs of their colour. It is by taking advantage of this fact that we are able, according to our present knowledge, to absolutely distinguish Koch's bacillus from every other organism save that of Leprosy. Inasmuch as the latter disease is peculiar to the human subject, the exception is of no consequence in dealing with suspected tissues from the lower animals.

It has already been mentioned that prolonged exposure to ordinary aqueous

solutions of the dyes commonly used in bacteriology is necessary to stain the tubercle bacillus. With the method originally employed by Koch, sections of tissues required at ordinary temperatures to be left in the stain for twelve hours or more, and this obviously was very disadvantageous.

Fortunately, however, a means has been discovered by which the staining process may be greatly shortened. Thus, when carbolic acid or ammonia is added to an aqueous solution of one of the aniline dyes, the penetrating properties of the stain are so increased that the bacilli becomes fully stained within a few minutes. The immense advantage of this, especially for clinical application, or in meat inspection, is obvious.

The following method, which is known as that of Ziehl-Neelsen, is probably the best method yet devised for staining the bacilli of Tuberculosis.

The stain may be conveniently made as follows :—Make one ounce of a 5 p.c. solution of pure carbolic acid in water, and add to it one-tenth of its volume of alcohol (rectified spirit). Put this, along with thirty grains of fuchsin, into a two-ounce stoppered bottle, and shake the bottle two or three times at intervals during the first day. The stain is now ready for use, a little of it merely requiring to be filtered each time that a specimen has to be examined. One of the great advantages of this fluid is, that it may be kept in stock for many months without deteriorating in respect of the rapidity or intensity with which it stains. As it is used, fresh stain may be made by simply adding more of the carbolic acid solution and spirit. When it is observed that all the fuchsin at the bottom of the bottle has become dissolved, a little more ought to be added.

Tubercle bacilli in sections are fully stained by this fluid in ten minutes when it is raised to a temperature of about 120° F., and even at ordinary temperatures that time is sufficient in the case of cover-glass films. When the object is merely to demonstrate the presence of the bacilli, that is, to use the test simply for diagnostic purposes, the method of procedure is as follows :—Let us suppose that the practitioner desires to apply the test in examining the carcase of an animal intended for sale as an article of human food. A fine scraping from the freshly-cut surface of the diseased part ought to be taken on the blade of a scalpel or penknife, and of this a trace is to be placed on a perfectly clean cover-glass. A second cover-glass is then to be put face to face with this, and gentle pressure combined with a slight rubbing movement of the two cover-glasses is to be applied, with the object of obtaining a thin, evenly-spread film on each. The cover-glasses are then to be quickly slid apart and laid aside on a clean surface, with the film upwards but protected from dust. It will be found that the film dries in a few minutes; and the cover-glass is now to be taken lightly by the edge in forceps (ordinary dissecting forceps may be used, but a smaller instrument is more convenient) and passed horizontally, film upwards, three or four times through the flame of a spirit lamp or Bunsen gas-burner. The rate of movement through the flame should be about four inches in a second. The object of this is to coagulate the albumen of the film, in order to prevent its being washed off in the staining process.

The stain is now to be applied, and that may be most conveniently done in the following manner :—Filter a little of the Ziehl-Neelsen stain into a common clean test-tube, and gently warm it over a spirit lamp or gas flame until steam begins to rise. Then pour the stain into a clean watch-glass, and drop the cover-glass, film downwards, on it. With care, after a little practice, one generally succeeds in thus making the cover-glass float on the staining fluid. It is, however, of little consequence, though it sinks to the bottom. While the cover-glass is staining, pour out into any convenient clean glass vessel a few drachms of distilled water, and add to it one quarter of its volume of strong sulphuric acid. Into another vessel pour a few ounces

of water (ordinary tap water will do), and into a third a few drachms of methylated spirit. After the cover-glass has been exposed to the staining-fluid for ten minutes, it is to be again taken by the edge in forceps, and dipped into the acid solution. Then wash in the vessel of water; and if there still remains in the film more than a slight shade of red, it ought to be again dipped into the acid. This may be repeated several times, until decolorisation has been carried sufficiently far. The cover-glass is then to be rinsed in the methylated spirit, and laid on its edge until dry. It is now ready to be mounted on a glass slide with a drop of Canada balsam dissolved in benzol or xylol. In immersing the cover-glass in the acid solution, if ordinary steel or brass forceps are used, the glass must be held by the very edge, so as to avoid dipping the tips of the forceps into the acid. Special platinum-pointed forceps for this purpose are sold by the instrument makers, the advantage being that the platinum points may, without corrosion, be freely dipped into the acid, and a more secure hold of the cover-glass can therefore be taken.

For the examination of a specimen thus prepared, a microscope magnifying at least 400 times is desirable, and a good oil immersion lens and a sub-stage condenser render the task of detecting the bacilli much easier. The bacilli will be found to have retained the stain, appearing as bright magenta red minute rods. A delicate pink tint is generally left in the albuminous film; but the colour is, by the acid treatment, completely dissolved out of every other species of organism (save, as has already been said, the bacillus of Leprosy).

Such is, briefly, what we take to be, for the general practitioner, the best method of staining for Koch's bacilli.

The tubercle bacillus is cultivated with difficulty external to the animal body. In the first place, it refuses to grow on or in many of the media suitable for the cultivation of other pathogenic organisms, such as that of Anthrax; and, in the second place, its growth ceases when the temperature falls below about 86° F., or rises above 106° F. We may conclude that the tubercle bacillus belongs to the class of obligatory parasites, for the conditions of its growth and multiplication outside of the animal body can scarcely ever occur in a state of nature, and there is therefore no foundation for the view that the tubercle bacillus is ubiquitous. It is true that tubercle bacilli must frequently exist in a vital state external to the animal body, for they are daily being voided by tuberculous men and animals; but when so voided they ceased to multiply, and probably they lose their virulence within less than a year. Even on the most suitable media, and at the most appropriate temperature, tubercle bacilli grow very slowly; and it is very difficult, and frequently impossible, to start cultures from chronic tuberculous lesions of the domesticated animals. Cultivation of the bacilli is therefore of no practical value as an aid to diagnosis in cases of suspected Tuberculosis.

### Frequency of the Disease in Different Species.

It is very doubtful whether any mammal has an absolute immunity from Tuberculosis, but in discussing that point it is necessary to remember that the proportion of cases occurring in any given species is not necessarily an index to the susceptibility of that species. When common domestic mammals are arranged according to the frequency with which they are attacked, the order is as follows:—Ox, pig, horse, carnivora (dog and cat). A few words may be said regarding the frequency of the disease in each of these species.

Regarding the frequency of Tuberculosis in cattle in this country, we do not possess any very valuable statistics, but one need have no hesitation in

saying that it is an extremely common disease. When only adult animals are taken into account, and when all grades of the disease are reckoned, it is not an extravagant estimate to set down the proportion at five per cent., and in milch cows kept in cities the proportion is probably four times that.

Tuberculosis is not exactly a rare disease in the pig in this country, but it is much less frequent than in the ox. The proportion is probably under one per cent.

There are, perhaps, still to be found in this country veterinary practitioners who believe that the horse is never the subject of Tuberculosis; and yet the disease is by no means rare in that species. Until recently it has generally been designated Lymphadenoma, and its true nature has been overlooked. Within the past three or four years over twenty cases have been brought under my own notice.

In the dog and cat, Tuberculosis is probably much more frequent than is generally supposed. Its frequency is underestimated, (1) because dogs and cats are generally buried or otherwise disposed of without a *post-mortem* examination; and (2) because, as in the horse, the lesions differ somewhat from those commonly met with in the ox, and may therefore be overlooked.

It may have been observed that as yet no mention has been made of the frequency of Tuberculosis in the sheep. It appears very doubtful whether any case of Tuberculosis in that species has been observed in this country, but a few indubitable cases have been encountered in the large Continental *abattoirs*. This immunity of the sheep is only apparent, for sheep are readily infected with Tuberculosis by feeding or inoculation.

As has already been mentioned, there are grounds for believing that the so-called Tuberculosis of the fowl is not identical with the disease of the same name affecting mammals. Be that as it may, Avian Tuberculosis is a rather common disease all over the three kingdoms.

*(To be continued.)*

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# Reviews.

THE PRINCIPLES AND PRACTICE OF BOVINE OBSTETRICS. BY SAYID SARDAR SHAH GILANI, G.L.V.S. (Lahore: Printed at the Islamin Press, 1891.)

This is probably the literary first-fruit of the teaching at the Lahore Veterinary School, and makes a good commencement, so far as text-book production goes. It appears to be concisely written, and the arrangement is good, though being published in Urdu will prohibit its use to any extent beyond our Indian Empire. It is illustrated with figures from Fleming's Obstetrics—on which work this is chiefly based—and Simond's lectures, and must prove of great advantage to Indian agriculturists and cattle breeders, no less than to the graduates of the Indian Veterinary Schools, the author doubtless being well acquainted with their requirements, as he is house surgeon and lecturer on bovine pathology and bovine obstetrics at the Lahore School. He and the school are to be congratulated on this very creditable venture, which is most praiseworthy. We observe that the book is fittingly dedicated to the Principal of the School, our valued contributor, J. A. Nunn, under whose inspiration we may assume the undertaking was accomplished.

VETERINARY NOTES FOR HORSE-OWNERS. FOURTH EDITION. BY CAPTAIN M. HORACE HAYES, F.R.C.V.S. (London: Thacker and Co., 1891).

RIDING ON THE FLAT AND ACROSS COUNTRY. THIRD EDITION. BY THE SAME.

We have already favourably noticed these works in each of the editions they have passed through, and the measure of their worth and popularity is

testified to by the number of these editions. Both works have undergone thorough revision, and "Veterinary Notes" has more especially received attention in this direction, much matter of a kind likely to be valuable to horsemen being added to what was in the last edition. The treatise on riding is a capital book, well written, and illustrated by eighty excellent drawings, and one in which Veterinary Surgeons—who should know a good deal about what can be done in the saddle—will find much to interest them.

VETERINARY COUNTER PRACTICE: A TREATISE ON THE DISEASES OF ANIMALS AND THE MOST SUITABLE REMEDIES FOR THEM. (Published at the Offices of *The Chemist and Druggist.*)

This is really a treatise on Veterinary Medicine, as not only does it give formulæ for doses of drugs to combat certain conditions, but it describes the symptoms of these conditions—in fact, it is a guide for the amateur, by which he may become his own Veterinary Surgeon; though we are told on the title page that it has been written expressly for Chemists and Druggists, and by "Qualified and experienced members of the Royal Veterinary Colleges." The preface also tells us that "this book has been written because it is considered that Chemists and Druggists do not obtain that share of the Veterinary practice of the country to which their knowledge of drugs and their action might fairly entitle them. While they could not, and need not desire to compete with the qualified Veterinary Surgeon, they might to a much greater extent than they do, supply the passing requirements of the farmer, the stock-holder, and the pet owner. These are at present dependent to a considerable extent on a class of men whose practice, successful though it often is, is always empirical, and not seldom dangerous. The suggestions comprised in the following will not serve as a substitute for the clinical experience absolutely necessary to the equipment of a competent Veterinary practitioner, but in hundreds of cases they will enable the chemist to understand cases detailed to him at his counter, and to supply the most suitable remedy." This is the object of the book, and not only does it give the symptoms and medical treatment of the maladies of the domesticated animals, but it also describes the surgical measures necessary, which cannot very well be performed over the counter. However, the book is fairly well written, and though there are mistakes here and there, they are not of vital importance.

MAYHEW'S ILLUSTRATED HORSE DOCTOR. REVISED AND IMPROVED BY J. J. LUPTON, F.R.C.V.S. (London: Griffith, Farran, Okeden and Welsh, 1891).

Mayhew's Horse Doctor has had—like all other works of its class—a certain measure of popularity, because it instructs laymen to act in a fashion as Veterinary Surgeons. The writing of such books appears to have a particular fascination for some members of our profession, and it is almost the only kind of book literature which Veterinary Surgeons in this country care to produce. Scientific books written by members of the profession for the profession are almost unknown, and their paucity is probably due to the fact—which publishers so frequently allude to—that Veterinary Surgeons do not buy such books, and therefore their production is a dead loss, financially. The present issue of Mayhew is brought up to date, and retains the illustrations—many of them very grotesque and comical, which appeared in the original edition. Some of the statements, if made at a Veterinary Society's meeting, would no doubt give rise to a very lively discussion, while some others might be challenged as to correctness. But as the book is intended for the general public, and not for scientific or professional readers, they will pass the muster to which they will be subjected by the uninitiated, who love to dabble in horse-doctoring.

VADE MECUM DI VETERINARIA MILITARE. COMPILATO DAI DOTTORI F. ZUPINACCI E L. BARUCHELLO. (Udine: G. B. Doretti, 1891).

This is an excellent little book, compiled by two "Capitani Veterinari," who are employed in the Italian War Office at Rome, for the benefit of their colleagues in the Army, and containing everything necessary to be known with regard to the military regulations for the performance of duty in peace and in war. These regulations appear to be very complete, and show that the organization of the Veterinary Staff of the Italian Army has been well considered. In addition to these regulations, there are details as to the establishment of Veterinary Surgeons, which appears to be somewhat analogous to that of the British Army, and has a Colonel-Veterinary—*Colonello Veterinario*—at its head, who is at the War Office, his official abode being the Veterinary-Inspection Office—*Offi.io d' Ispezione Veterinaria.* The total numbers are about the same as in our own Army, there being 1 colonello veterinario, 2 tenenti colonelli, 10 maggiori, 58 capitani, and 131 subalterni. Appended is a dictionary of materia medica, another of anatomy, a section on the use of the microscope and on micro-organisms, another on the parasites of the horse; yet another on the chemical and microscopical examination of the blood, urine and fæces; one on anatomical and physiological hints; and another on vices and unsoundness. The whole of this extensive information is contained in a little book, which can be carried in the pocket. Zupinacci and Baruchello have carried out their task in an admirable manner, and they will doubtless receive the grateful acknowledgments of their *confrères* for the pains they have bestowed on it.

## Army Veterinary Department.

*Gazette*, September 29th.

Veterinary-Surgeon S. M. Smith to be Veterinary-Surgeon, First Class, ranking as Captain.

*Gazette*, October 6th.

Veterinary Department.—The Queen has been pleased, by Royal Warrant, dated Sept. 26th, 1891, to approve of the alteration of the designations of the departmental rank of the officers of the Veterinary Department now serving as follows:—Principal Veterinary-Surgeon, ranking as Colonel, to be Director-General, with the rank of Veterinary-Colonel; Inspecting Veterinary-Surgeons, ranking as Lieutenant-Colonels, to be Veterinary Lieutenant-Colonels; Veterinary-Surgeons, First Class, ranking as Majors, to be Veterinary-Majors; Veterinary-Surgeons, First Class, ranking as Captains, to be Veterinary-Captains; Veterinary-Surgeons, ranking as Lieutenants, to be Veterinary-Lieutenants.

In reporting on the operations of the Black Mountain Expedition, among the names of officers who have been specially brought to the notice of the Commander-in-Chief in India for their services in connection therewith, is that of Veterinary-Surgeon Haggard.

## Obituary.

THE announcement of the demise of Mr. Francis Blakeway, F.R.C.V.S., of Stourbridge, will be received with regret by many members of the profession who knew and esteemed him. He graduated M.R.C.V.S. in 1850, and was made a foundation Fellow in 1877. He served the offices of vice-president and member of council of the Royal College, and always took a keen interest in professional politics. When he died he was in the sixty-fifth year of his age. The deaths of the following members are reported:—W. Hendrie, Stockport, graduated 1876; J. H. Ferguson, Leeds, graduated 1862; G. Waddell, Glasgow, graduated 1890.

## THE CELEBRATION OF THE CENTENARY OF THE ROYAL VETERINARY COLLEGE.

THE centenary of the Royal Veterinary College was celebrated, on October 19th, by a luncheon given in a tent which had been erected in front of the new buildings. The Duke of Cambridge, president of the college, took the chair, and among the guests invited were his Royal Highness the Prince of Wales, Colonel Sir Nigel Kingscote, K.C.B., the Earl of Coventry, the Earl of Feversham (president of the Royal Agricultural Society), Lord Ribblesdale, Lord Stalbridge, General Sir Frederick FitzWygram, M.P., Colonel Clarke (Equerry in Waiting), Sir C. L. Peel, C.B., Colonel the Hon. W. H. Allsopp, Mr. Walter Gilbey, Sir Jacob Wilson, Colonel Leach, Dr. Fleming, C.B., Mr. Berens (chairman of the General Purposes Committee), Mr. Burdett-Coutts, M.P., Mr. Swithinbank, Colonel J. D. Lambert, C.B., P.V.S., Mr. G. D. Whatman, Mr. G. H. Sutton, Professor Brown, C.B. (principal of the college), Dr. Watson Cheyne, Dr. Power, Dr. Crookshank, Dr. Sims Woodhead, Dr. Buchanan, Mr. J. A. Bloxham, Mr. G. M. Allender, Professor Axe, Professor Simonds, J.P., Professor M'Call, Professor Williams, F.R.S., Professor Duguid, Professor Pritchard, Major Tennant, Mr. A. C. Cope, Mr. Ernest Clarke (secretary of the Royal Agricultural Society), Mr. Eccleston Gibb, Mr. R. A. Powys (secretary of the Royal Veterinary College), Dr. D'Arcy Power, Dr. Bland Sutton, Dr. Fream, Admiral Field, M.P., Professor Shave, F.R.C.V.S., Professor Macqueen, F.R.C.V.S., Professor Penberthy, F.R.C.V.S., Professor Bayne, F.C.S., and Mr. J. S. Simonds. A large number of the students of the college were also present.

Previous to the luncheon, on the arrival of the Prince of Wales, the Duke of Cambridge and the Governors of the school received his Royal Highness in the committee-room, when the duke read the following address:—

"At a special meeting of the Governors of the Royal Veterinary College held this day, October 19th, 1891, it was unanimously resolved: 'That the sincere thanks of the Governors of the Royal Veterinary College be respectfully tendered to his Royal Highness the Prince of Wales for his kindness in visiting the college on the occasion of the celebration of its centenary.' 'In cordially welcoming his Royal Highness, the governors would venture to remind him of the close connection which for many years has existed between this college and the Royal Agricultural Society of England, and knowing the deep interest which his Royal Highness and other members of the Royal Family have ever taken in all branches of science, especially those relating to the advancement of agriculture, as increasing the prosperity of the agricultural community, and seeing how greatly such prosperity is dependent on that veterinary skill which it has ever been the object of the governors of this college to foster and promote by the education and training of competent veterinary surgeons. And, further, having regard to the many other valuable services (among which may be particularly mentioned those relating to the public health and the humane treatment of animals) rendered in every English-speaking country by members of the veterinary profession, the governors sincerely trust that the kindly interest, as shown by his Royal Highness's visit to-day, may be continued in the future towards an institution which can lay claim to the distinction of having been the cradle of the veterinary profession in this country.'"

After luncheon, the Duke of Cambridge proposed the first toast:—Your Royal Highness, my Lords and Gentlemen,—On the occasion of all gatherings of this kind the first feeling is one of duty to our country, and as I trust will

ever be the case, naturally and most properly our first sentiment is towards her Majesty the Queen. Seeing so large a gathering as I rejoice to see around me, I feel assured that you will by your hearts as well as by your voices drink the toast of "Her Majesty the Queen" with all the honours.

The toast was drunk with the utmost enthusiasm.

The Duke of Cambridge, again rising, said:—Your Royal Highness, my Lords and Gentlemen,—You will easily appreciate the fact that the next toast I have to give is the health of the illustrious Prince who is on my left. The hearty response that you have given to this announcement convinces me that everyone in this tent, from myself to every member I am addressing, rejoices to see his Royal Highness taking an interest in the centenary of our institution. I have already brought to your notice the feelings of Englishmen towards their Sovereign and their country, and I feel strongly, as being myself a very humble member of the Royal Family, that the fact of the members of that family taking a lively interest in all the great institutions of the country, is of the greatest possible advantage to those institutions, and is, I think, the right position for those members to take up. There is no man in my experience who enters so fully, so cordially, so cheerfully, and so readily into all our national undertakings as his Royal Highness the Prince of Wales. We welcome him here to-day with a conviction that his presence will be of the greatest possible advantage, not only to this college, but to veterinary science in general in this country. I feel assured that he, no doubt at considerable inconvenience to himself, has felt the advantage he would bestow upon the college by his presence here, and therefore he has done us the honour to come amongst us to-day. Gentlemen, I leave to his Royal Highness any personal remarks he may like to make on this interesting occasion, and I ask you cordially to join in drinking the health of "His Royal Highness the Prince of Wales, the Princess of Wales, and the other members of the Royal Family."

His Royal Highness the Prince of Wales, who on rising was greeted with enthusiastic cheering, said,—I am most grateful to my illustrious relative, your president, for the very kind manner in which he has proposed this toast, and to you for the cordial way you have received it. For all who are interested in the welfare of the Royal Veterinary College this a great day, as you are celebrating its 100th anniversary. I assure you it is to me a very great pleasure to be able to take part in it. I take the deepest interest in all that concerns horses and dogs. I look upon them as our friends. At the same time we must not neglect cattle, sheep, and pigs, which are useful to us. It may not, perhaps, be out of place if I were to give you a few facts on this occasion in connexion with the college. It was started about 100 years ago by a Frenchman, M. Vial de St. Bel, and in those days there was only accommodation for 50 horses and a shoeing forge. Now, I may say, the college stands entirely on its own merits, having never received help from the Government or assistance from outside, except, perhaps, that from the Royal Agricultural Society of England. Great and important improvements have recently been effected here; a new lecture room has been constructed, and a museum and laboratories for the study of pathology and bacteriology, besides a large theatre and dissecting room for the students, now numbering between 300 and 400, who have the advantage of all the aids which the most advanced science affords. The college has done its utmost to make its teaching better day by day, to endeavour to raise the *status* of its pupils, and to meet their requirements by introducing into the college better opportunities of studying the diseases connected with other animals than the horse only. The growing importance of veterinary knowledge and science is constantly increasing, from the enhanced value not only of horses of all breeds, but of cattle, sheep, and pigs, and from the additional liability to infectious disease. I may mention that the illustrious president of this college has on many occasions acknow-

ledged the valuable assistance of veterinary art in connection with the military service over which he presides. I have watched with the greatest interest how well the Royal Agricultural Society and the college have worked together to their mutual advantage, and also to the advantage of the agricultural interest of the country. That society has always been foremost in supporting this college. In 1842 it granted £200 a year in assisting to found a chair of cattle pathology, and this has recently been increased to £500 per annum in aid of pathology and research, which is now actively engaged in looking for diseases which have been productive of serious loss in live stock. The centenary of the college is drawing to its close with most prosperous surroundings, and it is with the greatest pleasure as well as satisfaction that I ask you to drink most cordially "Success and continued prosperity to the Institution." It affords me the greatest pleasure to couple with it the name of your principal, Professor Brown, whose long professional career at the college and his connexion with the Government Veterinary Departments are well known to you all, and whose services were rewarded by the Queen on the occasion of her jubilee by the Companionship of the Order of the Bath.

Professor Brown, principal of the college, in responding to the toast, said:—May it please your Royal Highnesses, my Lords, and Gentlemen.—The history of the last 100 years has not furnished an account of any very stirring events with regard to our profession. During that time generations of veterinary students have gone out to fight their battle with the world in all quarters of the globe, and the *vis à tergo* of advancing science has necessarily pushed us forward to a position of some importance. Whether or not we might have done more in this century is a question which it would be useless to discuss now, and if it is really the case that the records of the past furnish us with the memory of something which we would rather forget, it also has left us a legacy of rich hope for the future. The modern veterinary surgeon no more resembles the original horse doctor and cow leech than the fashionable physician resembles the barber-surgeon and medicine man of ancient times, who furnish the protoplasmic material out of which the art of medicine and surgery has been evolved. At the present moment we have great cause for congratulation. His Royal Highness the Duke of Cambridge is our president. We have on the governing board a body of noblemen and gentlemen distinguished in politics, in art, and in science, and of high social position, and there is little which we can desire now in the way of the arrangements for the teaching of our art, and that little, I venture to say, can be supplied whenever the want is recognized. When the question of the celebration of the centenary was first brought to the notice of the authorities the hope was expressed that His Royal Highness the Prince of Wales might be asked to pay us a visit. The hope assumed a somewhat shadowy form, because we all knew the demands upon His Royal Highness's time, but we also remembered the remarkable readiness with which he invariably sacrifices his own convenience and we could not forget that graciousness of manner, that urbanity, and what I have lately heard described in public as that remarkable good humour with which His Royal Highness undertakes the duties which devolve upon him on occasions like this. In the course of time the shadowy hope assumed a distinct character, and now it is an accomplished fact. The Prince of Wales is here, and His Royal Highness, with his usual kindness, has recognized the value of the services of our profession in the military and civil departments of the State, and in the peaceful arts of agricultural and rural economy. He has done this in a manner which forces us, I think, to accept his presence here and the words which he has uttered as a stimulus which should arouse us to efforts in the direction of scientific and social advancement—a stimulus which, like those obscure but wonderful forces in nature, producing such wonderful changes in the earth's surface, shall finally result in an upheaval which shall force up the

*status* of the whole profession and land us on a higher level than any to which we have hitherto aspired. Sir, on behalf of the college and all connected with it, I beg permission to return our very hearty and dutiful thanks for the kind words which you have used; and for my own part I can only feebly endeavour to express to you my sense of the honour which you have done me in coupling my name with the toast.

Colonel Sir Nigel Kingscote, in proposing the next toast, said the Prince of Wales had remarked that the Duke of Cambridge, as commander of the forces, had on many occasions acknowledged the efficiency of the veterinary art. For his own part, he would take the other side of the picture, and would say that the present acknowledged efficiency of the Army Veterinary Department was greatly owing to the consideration given to and the interest taken in it by the Duke of Cambridge. When his Royal Highness laid the foundation stone of the new buildings behind them, which it was to be hoped would be a lasting record of the centenary of this institution, he used the following words, which were not at all inopportune:—"We live in times of continual progress, and it is essential that every department of the State should try constantly and continuously to carry out the objects for which it has been brought together." These were words which ought to be remembered. As a governor of this college he was personally very fully sensible of the great interest which his Royal Highness took in its prosperity and efficiency. In conclusion, he said he had much pleasure in proposing the health of "His Royal Highness, the Duke of Cambridge, president of the Royal Veterinary College."

The Duke of Cambridge, in acknowledging the compliment, said he had certainly endeavoured to assist the Veterinary Department by every means in his power. During the many years that he had been at the head of the Army, a good deal had been done to let the members of the profession know that the Army appreciated their value and their importance. The present meeting would, in his judgment, greatly add to the interest of the public in their proceedings. The speech of the Prince of Wales was sure to attract attention, as everybody nowadays had facilities for reading in the newspapers accounts of what was going on around them. He hoped, therefore, that the college would not only obtain the sympathy of the public, but also a little of their money. He appealed to the public to support the good work that the college was carrying on by becoming annual subscribers of two guineas, in return for which they would have the advantage of sending their horses, dogs, and other animals for treatment at the college on reduced terms. In conclusion, his Royal Highness expressed a hope that the institution would continue to flourish for many years to come.

The proceedings then terminated.

Mr. Arthur Vernon, of 26, Great George Street, Westminster, was the architect of the new buildings, which have cost in all £8,000. After the luncheon the guests and governors inspected them, and Mr. Vernon was presented to the Prince of Wales by the Duke of Cambridge.

# Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

## ROYAL COLLEGE OF VETERINARY SURGEONS.

### QUARTERLY MEETING OF COUNCIL, HELD OCTOBER 15TH.

Veterinary-Colonel J. D. Lambert, C.B. (Director-General Army Veterinary Department), President, in the chair.

*Present:*—Professors Brown, Penberthy, Walley, and Williams; General Sir Frederick Fitzwygram, Dr. Fleming, Sir Henry Simpson, Veterinary-Captain Raymond; Messrs. Barford, Burnett, Edgar, Fraser, Greaves, Hunting, Kettle, Kidd, Malcolm, Mason, Mulvey, J. F. Simpson, Trigger, Taylor, Wragg, Mr. G. Thatcher (Solicitor), and Mr. A. W. Hill (Secretary).

The SECRETARY read the notice convening the meeting.

On the motion of Dr. FLEMING, seconded by PROFESSOR WALLEY, the minutes of the previous meeting were taken as read and confirmed.

*Absentees.*

The SECRETARY stated that he had received letters from Professor McCall, and Messrs. Whittle, Cartledge, and Nisbet, regretting their inability to attend the meeting.

*The Unconfirmed portion of the Minutes of the Council Meeting of the 23rd of July.*

Sir HENRY SIMPSON said that the first business was to consider the confirmation of the unconfirmed portion of the minutes of the meeting of Council held on July 23rd last, and it afforded him great pleasure to ask that it be confirmed. It would be within the recollection of gentlemen present at the last meeting that owing to the absence of the President he (Sir Henry Simpson) considered it undesirable that the minutes should then be passed. Since then he had had an opportunity of seeing the President and of talking over the circumstances which led to the misunderstanding, and he was glad to assure the members that written resolutions on matters of importance would in future be submitted to the President before being put to the meeting. He had been desirous that the examiners should be present at the inquiry which was to take place. The President had kindly and generously met the matter by writing to the President of the Board of Governors of the Royal Veterinary College suggesting that the examiners should be present, which he was sure the Governors would agree to. Under those circumstances he had the pleasure to move—"That the unconfirmed portion of the minutes be now confirmed."

Mr. WRAGG seconded the motion.

Mr. HUNTING pointed out that the explanation offered by Sir Henry Simpson did not touch the question under consideration. The argument was not whether the examiners should attend before the College or not, but whether the minutes should or should not be confirmed, and whether when they were objected to reasons should be given for that objection. Sir Henry Simpson's objections were a distinct denial that the resolution he had passed was the same as that upon the minutes. That was a very serious accusation, affecting the Secretary, and more or less the President; and it was necessary that the Council should have the matter thoroughly cleared up, independent of whether Sir Henry Simpson's resolution was good, bad, or indifferent. If the Secretary or the President were to blame for the resolution being improperly put upon the minutes, the Council should mark its sense of their conduct. If, on the

other hand, they were right in their action, it was due to the Council that Sir Henry Simpson should offer an explanation of his objections. It had been said that Sir Henry's written resolution was different from his verbal one, and so far as his memory went there was no doubt of that whatever. If any member of the Council were to be allowed to alter a verbal resolution when put in writing, either immediately after the motion was put, or the next day, it was a gross irregularity which should be objected to at once. It was somewhat of a personal question, and no member of the Council ought to remain under the imputation of having handed in a written resolution totally different from that which he had verbally proposed.

The PRESIDENT said he had communicated with the Board of Governors, and should be glad if the course suggested by Sir Henry Simpson was approved of by the Council. He was perfectly satisfied that Sir Henry had intended no imputation upon either the Secretary or himself. It appeared to have been the custom formerly that resolutions should be written out before being put from the chair. It was his intention to pursue this course in future, and then no misunderstanding could arise. As far as he was concerned, he was perfectly satisfied with the course Sir Henry Simpson had taken to-day.

Mr. KIDD said he had raised a question at the last special meeting with respect to the minutes, contending that the minutes of a regular quarterly meeting could not be confirmed at a special meeting. Sir Henry now moved that the unconfirmed portion be confirmed; he did not see why they should not all be confirmed.

The unconfirmed portion of the minutes of the Council meeting of July 23rd, were then confirmed.

*Presentations.*

The SECRETARY stated that presentations had been made to the Library of volume iii. of the *Veterinary Record*, by the Editor; a volume on Vaccine and Vaccination, by Professor Ménard; the Annual Report of the Veterinary Department of the Board of Agriculture for the year 1890; from the Superior School of Veterinary Medicine, at Milan; and the Report of the Bombay Veterinary College. A further presentation had been made by Professor Axe of a specimen of a mummified calf taken by a butcher from the uterus of a fat cow.

On the motion of Captain RAYMOND, seconded by Mr. PETER TAYLOR, a vote of thanks to the donors was unanimously accorded.

*Correspondence.*

Letter read from Professor McCall, *re* the new Charter.

Memorial read from the Border Counties Veterinary Medical Society, expressing disappointment that no provision had been made for a more equitable mode of electing representatives of the profession on the Council; praying the Council to take the matter into their earliest consideration.

Letter read from Mr. Kendal, thanking the Council for electing him an Honorary Associate.

Letter read from Dr. Yeo resigning his examinership.

Letter read from the Royal Agricultural and Commercial Society of British Guiana, stating they had forwarded two newspapers containing reports of meetings of the Society, and asking for information regarding the epidemic cattle disease prevailing in the colony, reference to which was made therein.

Mr. J. F. SIMPSON suggested that possibly the professional journals would furnish the requisite information.

Reports of experiments with Dr. Koch's tuberculin were submitted from Professors McCall and Walley.

Mr. J. F. SIMPSON proposed, and Professor WILLIAMS seconded, "That the Committee appointed to inquire into the merits of Koch's tuberculin be

re-elected, to consist of the old members with the exception of those no longer on the Council."

Sir HENRY SIMPSON questioned the necessity of re-electing the Committee, which he maintained had been appointed for a special purpose, and would continue to exist until that purpose had been accomplished.

Mr. THATCHER thought it desirable that the Committee should be re-appointed as there was some doubt whether it continued to exist or not. The meaning of the bye-law on the subject was open to question.

The motion was then agreed to.

*Finance Committee.*

The SECRETARY read the report.

Mr. F. W. WRAGG moved "That the Report of the Finance Committee be received and adopted, and that the Council authorise the Treasurer to draw cheques to meet the liabilities."

Dr. FLEMING seconded the motion, which was agreed to.

*Registration Committee.*

The SECRETARY read the report.

Sir HENRY SIMPSON moved, and Mr. PETER TAYLOR seconded—"That the seal be affixed to authorise to prosecute the following persons:—Messrs. Thorpe, Payne, Robinson, Strand, Walker, Cousens, and Willett and Nephew; and that the name of Mr. F. G. Baker be struck off the Register."

The resolution being put to the meeting, was carried with the necessary majority.

It was agreed that the names of Messrs. Gulliford and Wagstaff be restored to the Register.

*Examination Committee.*

The SECRETARY read the report.

On the motion of PROFESSOR WALLEY, seconded by Mr. PETER TAYLOR, the report was adopted.

*Library and Museum Committee.*

The SECRETARY read the report, which, on the motion of Mr. PETER TAYLOR, seconded by Mr. MULVEY, was agreed to.

*Fellowship Examination.*

The SECRETARY read the report, which stated that six gentlemen had passed; and he announced that the next Fellowship Examination had been fixed for the 30th of October. He had communicated with about thirteen gentlemen, of whom some seven or eight had expressed their intention of being present.

On the motion of Mr. PETER TAYLOR, seconded by PROFESSOR WILLIAMS, the report was adopted.

*The Fitzwygram Examination.*

The SECRETARY read his report.

Professor WILLIAMS expressed his pleasure that one of his students had obtained the first prize. The greatest honour and gratitude were due to Sir Frederick Fitzwygram for the encouragement he had extended to the College for many years past; but if the question of handicraft was to be introduced into the examination, in his opinion the sooner it came to an end the better. It was a question as to who was the most scientific as well as the most practical man, and to reduce the examination into a matter of handicraft was beneath the intention of the very kind donor of the prize.

Captain RAYMOND said that 100 marks were given for "shoeing," but whether that constituted the making of shoes or nails, or only the removal or applying of shoes, it was impossible to say. The students were asked to do

what they could in connection with shoeing. As it happened not one could make shoes or nails, but if a student had been able to do so, he would undoubtedly have obtained more marks than those who could not.

Professor WALLEY said that they had no right to dictate to Sir Frederick Fitzwygram as to what marks should be given for shoeing, but if it were intended that marks should be given for making shoes and nails, it ought to have been mentioned. Personally he understood that "shoeing" meant simply the taking off of shoes and directing men how they were to shoe under certain circumstances, which every veterinary surgeon ought to be able to do.

General Sir FREDERICK FITZWYGRAM said that 100 marks had been given for shoeing for a good many years past. If the examiners on the last occasion had thought fit to put the students through a more practical test than before in regard to shoeing, the Council had no reason to complain. The suggestion had not come from him, nor was he aware that it was going to be done. A person was much more competent to direct a farrier in shoeing a horse if he had some practical knowledge himself. Nobody would desire that veterinary surgeons should be turned into handicraftsmen or farriers, but a man was better able to teach others if he had a practical knowledge than if he merely dealt with theory.

Captain RAYMOND proposed, and Mr. PETER TAYLOR seconded the adoption of the report, which was agreed to.

*The Proposed New Charter.*

Mr. THATCHER (Solicitor) said that at the last meeting of Council a resolution was passed that he should be instructed to prepare a draft petition for a charter, and if he found any points which had not been covered by the Committee's recommendation, he was to insert them, subject of course to the approval of the Council. He had ventured to insert two, which he would deal with as he came to them. As each member had been furnished with a copy of the petition, he would briefly mention what he considered the salient points connected with each clause, and leave it to them afterwards to discuss them. He did not wish the draft charter to be approved at once, and submitted to the Privy Council; it would be more desirable that it should be simply approved as a rough draft, and then submitted to a thoroughly experienced Parliamentary counsel to put it into proper shape, and amend anything that he might consider was wanting or redundant. He had based the draft upon the report of the Committee, and the resolutions of the Council in connection with it. The first clause dealt with the first recommendation of the Council, and was to the effect that every member of the College should be eligible to be elected a member of Council. Some mention had been made that the clause had been set out a great length; but it must be remembered that unless the Privy Council had everything before them, they would send the petition back for the necessary materials; or they might imagine, in the absence of certain information, that certain facts did not exist, and the result might be most disastrous. He thought it better to err on the side of having a dozen sentences too many than too few. He had, therefore, set out in the clause the history of the College, the history of the formation of Fellows, and the test applicable to them; the number of members and Fellows now upon the rolls; how many had been examined and admitted, and the proportion of Fellows to members. The next clause had reference to Vice-Presidents. That, also, was in accordance with the following recommendation of the Committee: "That Presidents and Vice-Presidents shall be elected members of the Council, and that the number of members of Council be increased by six." Then there was a suggestion that the total number of members be thirty-two, and that was carried. The only difference now was

that instead of Vice-Presidents being elected by the members of Council at their first meeting, the whole of the members of Council, which were to be thirty-two, making one more than previously existed, were to be elected by the members themselves; and that at the first Council meeting, the President and so many Vice-Presidents were to be elected out of their own number. The reason for making the number thirty-two, instead of thirty-one, was because it would be more convenient for some members to retire by rotation. The third clause had reference to the time of the annual meeting. The resolution of the Council was that the annual meeting should take place on the first Wednesday in June, but nothing was said as to any alteration in the place of meeting. He had, therefore, drawn the clause as he had had it from the Council. The fourth clause required careful consideration, having regard to the increase of the examination fees. The reasons he had set out for an increase in the fees were capable of considerable strengthening, and he asked the cordial support of the Council in making any alteration, so that the clause might have more weight with the Privy Council. The fifth clause, which had reference to the matriculation examination, was one which he had added on his own responsibility, in accordance with his instructions, and he left it to the Council to accept or reject it. Doubts had been expressed whether they had power under the Charter of 1844 to enforce the matriculation examination. Without expressing any positive opinion on the subject, he thought it desirable that that doubt should be set at rest. He had no doubt, if it were put before the Privy Council in a proper manner, they would deem it advisable that members of the profession should be capable of holding their own in matters of general education. If they had the power in the Charter, it would be confirmed; and if they had not the power, it would be given to them. The next clause was in accordance with Clause 9 of the recommendation of the Committee, as varied by the Council. He had ventured to insert the next clause on his own responsibility. It was that the Registration Committee should have more power to institute prosecutions. According to the Summary Jurisdiction Act, prosecutions must be instituted within six months of the date of the offence, and as the Council meetings were held but once a quarter, a man might escape Scot-free. Originally they did not ask for a seal of recommendation from the Council, but upon one occasion they were met by the prosecution being dismissed on that ground. He thought it would be advisable to have the matter settled once for all by a higher Court; but the Council thought it better that those resolutions should be brought before them, and that the seal should be affixed. The Act stated that a prosecution could only be instituted by the Council. "A prosecution under this Act may be instituted by the Council of the Royal College of Veterinary Surgeons, but not by a private person without written consent." The act of the Council was evidenced by the affixing of the seal, and that was settled by the Charter, which said that the seal should only be affixed at a Council meeting and under certain conditions. The object of the clause was that the Council should have power to delegate authority to the Registration Committee to affix the seal for power to prosecute, but for no other purpose. He should be glad to see the Clause adopted by the Council, as he was sure it would prevent many miscarriages of justice, which now took place. He thought it would facilitate matters if the clauses were discussed *seriatim*, and resolutions passed upon them.

Mr. MULVEY said he desired to compliment Mr. Thatcher on the way in which he had drawn up the draft Charter, and for the lucid way in which he had given expression to their views. In Clause 1 he saw no reason for any alteration, except a few verbal ones. He would suggest the addition of the words "medicine and" between the words "veterinary surgery," so that the sentence would read, "should be established for the purposes of education in

veterinary medicine and surgery." He also proposed that the words "be allowed or the fee for the degree of Fellow, but to," on line 5, page 4, of the petition be omitted; and he would further suggest that the last sentence but one of the clause be altered to read as follows:—"That since the date of the said letters patent, 155 candidates have obtained the Fellowship diploma; that there are now 2,814 members of the Royal College of Veterinary Surgeons, of whom 192 are Fellows, 41 of these being Fellows by election and 151 Fellows by examination;" that the word "ordinary" in the last sentence be omitted; and that the words "Royal College of Veterinary Surgeons" be substituted for "College." With those alterations he moved the adoption of Clause 1.

Mr. FRAZER seconded the motion.

Clause 1 as amended was adopted.

Mr. MULVEY moved that Clause 2 be adopted as it stood.

Professor WALLEY seconded the motion.

General Sir FREDERICK FITZWYGRAM said he saw serious objections to the clause so far as it related to the election of Vice-Presidents. In every profession there were certain very able men whose opinions were of great value, and whose advice might be of great assistance, but who would not be capable of being elected by popular assembly, and it had been the wisdom of Parliament, and almost all Government Councils, to make some provision for obtaining the advice and assistance of such persons on the Council. For instance, in the County Council, it was provided that a certain number of aldermen should be elected who were not necessarily those who were chosen by the Council. An argument had been used that the Council of the College was elected by the constituency, and that no one ought to be otherwise elected. It was that argument against which he wished to plead. The Council was a thoroughly representative body because it was elected by the constituency, and, that being so, he thought it should be free to fill the vacant posts of Vice-Presidents from the best and fittest men that could possibly be found in the profession. He believed they would derive very great advantage occasionally by the presence of such men on the Council. He thought the objection which had been raised, that everybody ought to be elected by the electors, was fairly answered by the fact that the Council who selected the extra members were themselves representative of the profession.

SIR HENRY SIMPSON said it was extremely gratifying to find a gentleman of Sir Frederick Fitzwygram's experience in public life coming there to state what he had. He himself had contended for that principle until he was tired. With regard to the working of the clause, he found at the bottom of page 5 this sentence: "That great inconvenience has occasionally arisen in consequence of Presidents and Vice-Presidents, who were not also ordinary members of Council, having to retire from the Council at the end of one year." Since he had been a member of the Council he had never known of any inconvenience arising, and he did not see how it could. Why the members of the profession, who had already four-fifths of the power in their own hands, should desire to take the other fifth also, was a matter he could not understand. He believed it arose from their not having studied the way in which municipal and other institutions in the country were conducted. Sir Frederick Fitzwygram would not be able to satisfy the majority of the Council, who had already made up their minds, and who were sent there to do nothing but carry out their pledges; therefore, it was not for him to do more than ask the Solicitor to inform the Council what great inconvenience had arisen from the present order of things.

Mr. THATCHER (Solicitor) said that was rather an invidious question. It was part of the duty of a draftsman to put what were called reasons into the draft. He did not mean to say those reasons were incorrect, because to a

certain extent they were correct, but so far as he was concerned, he was only the mouthpiece, and had put down the wishes and the expressions of opinion of the Council as he understood them. Beyond that, he could assume no responsibility whatever.

Mr. KIDD readily admitted that Sir Frederick Fitzwygram's opinion deserved their greatest consideration, although he (Mr. Kidd) took an opposite view. His reasons for believing that the members of the Council should be elected by the profession was based on what had taken place in the Council for a number of years past. They had only to look at the last election for an example of that. If the profession did not return a member to the Council who had had a seat upon it for years, then the Council immediately placed him on the list of Vice-Presidents, thereby going directly in the face of the profession. Therefore, he believed it to be a mere act of justice to the profession that it alone should elect the members of Council, and that the members of Council should elect a President and Vice-President from their own body alone.

Mr. HUNTING said he had listened to Sir Frederick Fitzwygram's remarks as to an academic discourse that he had no wish to contradict or object to, as it had very little application to the question before them. Sir Frederick attempted to draw an analogy between the arrangement of the Council and the veterinary profession, and the inhabitants of a locality and the County Council. It did not exist. In every district there were extremely diverse interests concerning persons and property; in their profession there should be no diverse interests, and there should be no one to check their progress. The aldermen, the House of Lords, and all those checks to representative government were put in their positions to steady the ship, to prevent progress being too rapid, and to back up vested interests. They had no vested interests except those common to everyone, and there was no reason why every member of the profession was not capable of voting for good men. There was always safety in numbers; the prejudices of the individual spread over large numbers counteracted each other. But when it came to a little profession like their own, the combined prejudices of three or four men might do a lot of harm. Leaving the academic question altogether, what had been the practice since 1844 down to the present time? Had it been the practice of the Council to go round the country and carefully select the best and most talented men, whose sympathies would not allow them to ask the favour of being elected? Many of them had known the vice-presidents: had they ever noticed any superiority over the elected members of Council? As a matter of fact, the vice-presidents had been, as a rule, the friends of the members of Council, and had been utterly unknown except for having made money in the profession. With reference to Sir Henry Simpson's remark, that was a sort of taunt that the members who had been recently elected did not possess brains to think for themselves—that they would vote irrespective of right or reason if the profession so desired. Sir Henry seemed to forget that those men were elected because they had the brains to think—because they were the few men in the profession who went for the subject clearly and distinctly—they had never acted without thinking, and were not likely to do so now. Because they did think, he had not the slightest doubt which way they would vote.

Dr. FLEMING said he did not like to hear disparaging remarks with regard to the vice-presidents. He was sure the majority of gentlemen present would testify that the vice-presidents, who had been elected for a number of years, had the welfare of the profession as much at heart as anyone. They had been accomplished members of the profession, and he thought it only just to say that on their behalf.

Mr. J. F. SIMPSON said he did not intend to oppose anything contained in

the clause, since the profession had decided that it was a wrong system for the Council to elect vice-presidents. He thought Mr. Hunting had misinterpreted Sir Henry Simpson's remarks with reference to those gentlemen who had been recently elected on to the Council. They had been sent to the Council to vote upon the subject matter of the clause, and he should be extremely surprised if they withdrew their countenance from it. He thought the argument used by Mr. Kidd against Sir Frederick Fitzwygram's remarks tended very much to strengthen the latter, because the Council had an opportunity, which the profession had not, by its many Committee and Council meetings, of ascertaining the real value of certain men.

The motion for the adoption of the clause was then put and agreed to.

On the motion of Mr. MULVEY, seconded by Professor WALLEY, Clause 3 was adopted.

Mr. MULVEY said with reference to Clause 4, giving power to increase the fees, he again appealed to the members of the Council not to increase them to the extent they had determined upon. It was a big jump from thirteen guineas to twenty guineas, and he would suggest a medium course. He moved, "That the word 'fifteen' guineas be inserted instead of 'twenty.'"

On the motion of Mr. J. F. SIMPSON, the clause was passed as it stood.

Mr. MULVEY moved the adoption of Clause 5, substituting the words "intending students" for "examining students."

On the motion of Mr. PETER TAYLOR, it was resolved "That the clause be adopted as printed."

Mr. MULVEY said he had very great objection to the reading of the latter part of Clause 6, where it stated, "That it has been the custom for the Council in such appointments to indifferently select persons as examiners whether members of Council or not." That statement was incorrect, for it had been the the practice of Council to appoint gentlemen of their own body as examiners. From the year 1844, when the first Charter was obtained, down to 1880, every examiner that was appointed had a seat on the Council. In 1880, Mr. Alexander Robinson and Mr. Archibald Robinson were the two first gentlemen who had the honour of being elected from outside the Council. From 1880 to the present time only seven men had been elected who were not also occupying seats at the Council. The statement in the clause was therefore absolutely incorrect. He proposed "That we stop at the words 'such persons,' and that the remainder of the clause reads as follows:—'That it has been the custom for the Council in such appointments to select persons as examiners. whether members of Council or not. That in practice it has been found the examiners are generally selected from the members of the Council. That such elections have led to the limitation of all offices in the profession to a few members; and that the election of men to a paid office by a body on which they sit, and may vote, is obviously objectionable. That although no imputation is alleged against any individual, who, being a member of Council has also acted as examiner, yet it is thought desirable that the offices of examiner and member of Council should be separate and distinct, and incapable of being held conjointly.'"

Dr. FLEMING said he thought they would find that the large proportion of the examiners were not members of Council. There were examiners in physiology and chemistry who were not members of the veterinary profession at all, and, therefore, he thought the solicitor was right in the manner in which he had framed the clause. Selections had been made in the Council and out of it for examiners.

Mr. MULVEY said he had meant to say the veterinary board—members of the Royal College of Veterinary Surgeons, who are also members of the Examining Board.

Sir HENRY SIMPSON said it was desirable to stick to facts in matters of that

kind. In the proposed alteration Mr. Mulvey suggested they should say that in practice it had been found that examiners were generally selected from members of Council. That was either a fact or was not. Dr. Fleming had quite disproved it. The Council consisted of thirty members, and he challenged any gentleman to say that within the last ten years there had been as many as one-third of the members of Council who were also examiners. Whatever might be said as to the propriety of gentlemen holding the two appointments, the majority had always been two-thirds who were not examiners, against one-third who were. That being the case, he did not see why they should be asked to assent to a proposal which certainly was not a matter of fact.

Mr. HUNTING said they would remember that in his introductory remarks, the solicitor had pointed out how important it was for them to strengthen all those resolutions as much as they possibly could, so that when they came before the Privy Council, it would have all the information and arguments, necessary to prove what was wanted. If it was necessary in one paragraph it was necessary in all, and in this clause in particular it was necessary to strengthen reasons and to show the Privy Council why they desired to do away with dual appointments. Mr. Thatcher had unfortunately given no reasons whatever in that paragraph; and, as far as he understood Mr. Mulvey's amendment, it was simply the addition of reasons for carrying what was required. It was most important that they should give reasons, and that they should be true. It would occur to most of them that Mr. Mulvey did not mention (but it did not follow that he had overlooked it) the presence of medical gentlemen on the Board of Examiners. It was, perhaps, a fortunate thing that they were medical men, for if they had been veterinary surgeons, they would certainly have been members of Council as well. They could not possibly have had them on the Board, or it was perfectly certain they would have held a dual appointment. ("Nonsense.") Nonsense, it was said. The nonsense was shown by the fact that since 1844 there had been only eight men who had sat on the Examining Board who had not been dual appointees. He was quite willing to accept Sir Henry Simpson's remark that the proportion on the Council was two thirds not dual appointees, and one third holding dual appointees. But one third of a body was a very big proportion, and the only reason that it was not larger was that there were not sufficient examinerships for them to hold. If the principle were agreed to, it was necessary, as the solicitor had pointed out, to give good reasons for what was required. The clause was useless unless Mr. Mulvey's amendment was put in, and he had great pleasure in seconding the amendment.

Mr. J. F. SIMPSON said he thought the wording of the clause was particularly happy, and he therefore moved as an amendment that it be accepted as it stood.

Sir HENRY SIMPSON seconded the amendment.

The original motion was then carried.

Mr. MULVEY moved the adoption of Clause 7, which was agreed to.

On the motion of Mr. J. F. SIMPSON, seconded by Mr. MULVEY, it was resolved that the draft Charter be submitted by the Solicitor to a Parliamentary Counsel for his opinion thereon and settlement.

Mr. MULVEY moved "That a copy of the draft Charter be sent to the Secretary of every Veterinary Medical Association, with a request that signatures be obtained to the petition."

Mr. KIDD seconded the motion.

Mr. J. F. SIMPSON moved as an amendment, "That the draft Charter, when approved by Parliamentary Counsel, be distributed amongst the members of the whole profession."

Sir HENRY SIMPSON seconded the amendment.

Mr. HUNTING proposed as a further amendment, "That the profession be supplied with a copy of the prayer to the petition for the new Charter."

CAPTAIN RAYMOND seconded the amendment.

Mr. HUNTING'S amendment was then put, and the votes being equal, it was registered by the casting vote of the Chairman.

Mr. J. F. SIMPSON'S amendment was then agreed to.

*Resignation of Dr. Yeo.*

Mr. MULVEY moved that the resignation of Dr. Yeo be accepted, and that a letter be sent to him expressing the regret of the Council, and acknowledging the services he had rendered.

Dr. FLEMING seconded the motion, which was carried.

Mr. MULVEY moved that Mr. William Augustus Taylor, of Manchester, F.R.C.V.S., be elected Examiner in Physiology, in the place of Dr. Yeo, resigned.

Mr. TRIGGER seconded the resolution.

Dr. FLEMING proposed Professor Halliburton, Professor of Physiology at King's College, to fill the vacancy.

Professor WALLEY seconded the nomination.

The ballot was then taken, and the PRESIDENT announced that Professor Halliburton was elected; the voting being, for Professor Halliburton, 11, and for Mr. Taylor 10.

Mr. MULVEY proposed that Mr. John Edgewood Peel, M.R.C.V.S., of Durham, be elected a member of Council, as successor to Mr. Simcocks, to fill up the unexpired portion of that gentleman's time.

Mr. J. F. SIMPSON moved as an amendment, "That the vacancy be not filled until the May election, when the profession would have the opportunity of making the choice."

Mr. TRIGGER seconded the amendment, which was carried by 10 votes to 5.

*Committee to Act with the Worshipful Company of Farriers.*

Sir HENRY SIMPSON wished to know for what purpose the Committee was to be appointed, as there was already one in existence, appointed for the specific purpose of carrying out the scheme for the registration of farriers, and which acted in co-operation with the Committees appointed by the Royal Agricultural Society and the Farriers' Company. The work of registration was now practically complete. The Committees of the Royal Agricultural Society and the Farriers' Company would be excessively surprised if new members were sent down to act with them. Since the Council had been asked to appoint a Committee they had not altered their members, neither had the Royal Agricultural Society nor the Farriers' Company. He should like the President to inform him if he had received any communication from those Companies stating that the existing Committees were incompetent or incapable.

The PRESIDENT said there had been no communication of that sort.

Dr. FLEMING said he had not heard a word about the Companies wishing the Committee to be changed.

Mr. HUNTING said the question turned upon whether a Committee once appointed at a Council meeting was for life or not. If it were understood that the Committees were appointed for life or until, as was suggested, somebody acting with them complained of their conduct, it was not at all likely they would ever have changes. Every Committee he knew of was appointed annually.

Mr. J. F. SIMPSON said there was a proper time for the appointment of committees, and that was annually; they had a special meeting for the purpose. Was it right that anyone should suddenly make a suggestion that a committee be re-appointed?

The PRESIDENT said he was instructed by the Solicitor that it was not necessary to re-appoint the Committee.

Mr. THATCHER (Solicitor) said it did not seem to have been a committee of their body. It was simply certain members of their body to act on a joint committee with the Royal Agricultural Society and the Farriers' Company. He did not think they had powers at the present time to re-elect the Committee.

The next business was then proceeded with.

On the motion of Professor WALLEY, seconded by Mr. TRIGGER, the next examination was fixed to take place on Monday, December 14th.

Mr. MULVEY proposed the following resolution which stood in his name—"That the Solicitor be requested to ascertain from the Minute Book what resolutions passed by the Council were still in force, and that the Secretary be instructed to prepare a book in which these resolutions be entered." Numerous resolutions had been passed by the Council at various times, but they had got so mixed up in the Minute Book with other matters that resolutions of the same nature and purport had been passed over and over again.

The motion was seconded by Mr. J. F. SIMPSON.

Sir HENRY SIMPSON thought the process suggested would be a very laborious one to carry out. The mover and seconder of the resolution evidently intended that the Minute Book should be searched, and that all the resolutions which had been passed, but had not been acted upon, should be put in a book and submitted to the Council.

Mr. MULVEY said he meant all resolutions which had not been rescinded; it was properly expressed in his motion.

Professor WILLIAMS asked if Mr. Mulvey proposed to go back to 1844.

Mr. MULVEY said he should propose to go back for the last few years. He thought it would be for the Solicitor to determine what resolutions were in force, but they need not go further back than, say, five years.

*Motion by Professor Penberthy.*

Professor PENBERTHY said that the motion standing in his name, "That hospital details and animal management be made a subject of the first examination," was rather to raise the question than to get it carried. A great deal had been heard of late about the failures at the third examination, and the want of practical knowledge of young graduates in veterinary surgery. The responsibility rested not with the teaching school, but with the College which granted the diplomas. It was really the function of the Council to see that the men had the knowledge which it represented them to have by their diplomas. The short examination occupying the time that was even now laid down was, in his opinion, insufficient to find out whether the men possessed that knowledge or not. He mentioned hospital details and animal management in his motion. They all knew that nothing but practice could bring about manipulatory dexterity, and he thought it was the duty of the Council to take every means at their disposal to insist upon familiarity with the veterinary surgeon's work. On the previous day a Sub-committee of the Examination Committee was chosen to consider the whole matter. He had been elected on that Sub-committee, and he was perfectly satisfied that he could express any views on the point to that Sub-committee, and as far as he was concerned that met the whole matter. He therefore left his resolution in the hands of the Council.

Mr. TRIGGER said he wished to take the opportunity of saying how cordially he approved of Professor Penberthy's suggestion. Some guarantee was wanted that the pupils had some knowledge of the manipulation of animals before entering the College, and although they could not vote for

compulsory pupilage, he thought the resolution very much met the difficulty. He moved that Professor Penberthy's resolution be referred to the Sub-committee.

Mr. J. F. SIMPSON seconded the motion, which was agreed to.

Mr. HUNTING gave the following notice of motion:—"That all Committees elected by the Council shall be re-elected annually."

A cordial vote of thanks to the President concluded the business.

## CENTRAL VETERINARY MEDICAL SOCIETY.

Meeting at the First Avenue Hotel, on 1st October. Present—Messrs. Butters, Barrett, J. A. W. Dollar, Gibbings, A. E. Gostling, Kettle, Mahon, Moore, Mulvey, McOnie, Prudames, Professor Penberthy, Messrs. Roots, Rowe, Rogerson, Rogers, Samson, Prof. Shave, Messrs. Villar and Woodger. The President in the chair. Visitors present—W. Rattee and Prof. Macqueen.

A post card was read from Prof. Walley expressing his inability to attend the meeting.

The Secretary next read a letter from the Secretary of the Congress on Hygiene acknowledging receipt of Society's letter naming its delegates and intention to contribute 5 guineas towards the expenses. In regard to J. Hepton, who applied to the Society for assistance, a letter was read from the Yorkshire Society, stating that they had never heard of that gentleman, but they now saw his name was on the Register.

Mr. ROWE asked the Secretary if he was aware whether he had applied to other societies. Mr. ROGERS said he was not. He had ascertained that his name was on the Register. He thought the man should be best known by his nearest society. It was rather far for them to go to give assistance if a society in his own immediate neighbourhood took no notice of him.

It was decided to proceed with the next business. A letter was read from the Royal College of Veterinary Surgeons acknowledging and thanking the society for their handsome donation of £50 for an exhibition or prize fund.

### *New Fellows.*

The following gentlemen were unanimously elected Fellows of the Society:—

I. Matthews, Royal Horse Guards, Blue; W. W. Wright, St. Johns; A. Wheatley, Reading; T. C. Garry, Wandsworth; S. E. Holmans, Lee.

### *Annual Report.*

The Secretary then read his annual report; from this it appeared that 16 new Fellows had been elected, and 4 had resigned. The present number was 90. There had been four council and 10 general meetings, and the average attendance at the latter was 25. Eight papers and addresses were given, and many interesting and instructive discussions had taken place.

£50 had been given to the R.C.V.S. towards a prize fund; 20 guineas to the Steel Memorial Fund; and £5 had been offered as a prize for the best dissected specimen sent in by students of any Veterinary School. The latter had failed to bring forward a competitor.

The receipts for the year were £74 15s. 11d. The expenditure of the Society had amounted to £85 16s. 1d. and the amount on deposit and in the hands of the Hon. Treasurer, was £238 12s. 2d. Mr. WOODGER pointed out that £50 had not yet been handed to the Royal College.

Mr. MULVEY said he would like to know why there were no competitors for the £5 prize offered. The Secretary said he had received a letter from Prof. Walley, stating that his students had no time. The Secretary of the Camden Town College wrote, saying the Society's notice came too late, but he appeared

to overlook the first notice of the prize which was given some months before. Then, besides it was publicly advertised in the Journals. Mr. MULVEY said he supposed they must assume then that the students had no time to give to anatomical dissection.

Prof. SHAVE said that assumption would be unwarranted. He thought it would be best if the Society sent a notice to be posted up in the colleges. It was quite possible that the students overlooked the notice in the Journals. He thought the Society should give the students one more chance; if they did not take any notice of it another year then, he thought, they would be showing great apathy. He should do the best he could to induce them to do so.

Mr. MULVEY reminded Prof. Shave that the notice was sent to the Secretary of the Camden Town College a very long time ago.

Prof. SHAVE said he could not say anything as to that. He should see now that the notice was posted in the dissecting room.

Mr. VILLAR said he had posters printed and sent round to the various institutions.

Mr. BARRETT said perhaps Prof. Shave would suggest a better means to adopt. Perhaps the prize could be given to the one who passed the best examination.

Mr. ROWE advised the Society to continue the original a little longer.

Mr. PRUDAMES asked whether any conditions were given with the offer.

The SECRETARY said the specimens were simply to be sent in to be judged by a Committee, and the competitors would receive their specimens back.

The CHAIRMAN said he was inclined to agree with Mr. Rowe, that the original plan should be adhered to. Still they would be very glad to hear any proposal from Prof. Shave.

Professor SHAVE said they had plenty of examinations and he should like to see the students have energy enough to go in for the dissection. If he could suggest anything it was, perhaps, that a description should be given by the student of the part sent in.

The CHAIRMAN said if that were carried out he should be inclined to give the prize to the one who gave the best description.

Mr. MULVEY said they had offered the prize without conditions, and there had been no single response. Any conditions now, he thought, would render a response still more unlikely. He then proposed that it be a recommendation to the Council to offer the prize for another year on the same conditions. This was seconded by Mr. ROWE and carried unanimously.

The SECRETARY then read the balance sheet, which showed a balance in hand of £38 12s. 2d.

Mr. MULVEY said there could be no discussion on such a good balance sheet.

Mr. ROWE said they had worked well and achieved results that they must all be satisfied with.

Mr. MULVEY moved that the report and balance sheet be received and adopted. Mr. MOORE seconded the motion, which was carried.

*Election of Officers.*

Mr. ROWE said as one of the oldest members he took the liberty of proposing one who had made himself familiar to them all by his constant attendance and the work he had done for the Society. He alluded to Mr. Roots, and although he was not the oldest member still he thought they would be paying a graceful compliment to him by electing him their President for the coming year. He did not wish to add any fulsome praise. He did not know whether there was any other name to be suggested, but he hoped that they would be all in favour of one only.

Mr. BARRETT said he had pleasure in seconding Mr. Rowe's proposal. He did so with considerable satisfaction. Mr. Roots had devoted much time to the interests of this Society. He had been present at most of their meetings, and was worthy of their support. He had special pleasure in seconding this proposition inasmuch as Mr. Roots was a neighbour of his. He was quite sure Mr. Roots would carry out the duties of the honourable post impartially and with courtesy, There was no question as to his ability or fitness and he hoped they would elect him unanimously.

The CHAIRMAN then put the proposition to the meeting and it was carried unanimously.

Messrs. ROWE and GOSTLING were appointed Scrutineers on the proposition of Mr. VILLAR, seconded by Mr. MULVEY.

Four Vice-presidents were then balloted for. Seven names were proposed, viz.: Messrs. Samson, Wragg, Mulvey, Raymond, Barrett, Villar and Prof. Shave.

The result was as follows:—

Mr. Raymond 9, Mr. Wragg 7, Messrs. Mulvey, Villar, and Shave 6 each. The last three names were submitted to a second ballot, when Mr. Villar received 11, Mr. Mulvey 9.

The four elected were therefore Messrs. Raymond, Wragg, Villar, and Mulvey.

For twelve members of the Council the following were nominated:—

Messrs. Kettle, Penberthy, Dollar, Moore, Prudames, Shave, Barrett, Gibbings, Rowe, Samson, Rogerson, Sheather, Hunting, McOnie, Gostling, Axe, and Pritchard.

The elected were—Mr. Hunting 13, Mr. Samson 13, Mr. Rogerson 10, Mr. Gostling 10, Mr. Dollar 9, Mr. Moore 9, Mr. Rowe 9, Prof. Penberthy 8, Mr. Gibbings 8, Prof. Pritchard 7, Prof. Shave 7, Mr. Barrett 7. Of the others, one secured 6 and three 5 each.

Mr. ROWE then proposed Mr. Woodger as Hon. Treasurer, which was seconded by Mr. ROGERSON and carried unanimously.

Mr. MULVEY said their present Secretary, Mr. Rogers, had done so well in the little time he had been in office that they could not do better than re-appoint him.

Mr. ROWE in seconding the proposition said he hoped Mr. Rogers would have as much pleasure in office as he (the speaker) had in his day.

The proposition was carried unanimously.

Mr. ROGERSON then proposed as two auditors Messrs. Butters and Gostling, which was seconded by Professor PENBERTHY, and carried unanimously.

Mr. MULVEY proposed a vote of thanks to the Chairman, which was seconded by Mr. ROOTS and carried unanimously. Mr. SAMSON replied in a few well chosen sentences.

Mr. VILLAR proposed and Prof. PENBERTHY seconded a vote of thanks to the Hon. Treasurer, Mr. J. Woodger, which was unanimously carried. Mr. WOODGER acknowledged the thanks of the Society briefly.

Mr. SIDNEY VILLAR gave notice of motion "that the place of meeting of the Society be changed." This ended the proceedings.

## ROYAL VETERINARY COLLEGE.

### OPENING OF THE SESSION, OCTOBER 1ST, 1891.

*Introductory Address by Professor Brown.*

Professor Crookshank, M.B., in the Chair.

THERE was a large attendance of students and their friends in the New Theatre of the College.

The CHAIRMAN, who on rising was received with loud applause, said:—I will now call upon the Principal to deliver his inaugural address.

PROFESSOR BROWN (the Principal), who was received with loud cheers, said:

Mr. CHAIRMAN AND GENTLEMEN,—The first word which I should like to utter is one of welcome to the opening of the College under new conditions. After 100 years of existence we welcome you all here to-day under new arrangements, in a new theatre, and with all the appliances which modern science has placed at our disposal. It will not, I think, require a very great effort of imagination for you to go back with me to the beginning of this century and see what the College was in its earliest period. You are, most of you I apprehend, aware that in the year 1790, Charles Viel de St. Bel came over from France with the intention of founding a veterinary college. It was the second effort—the first failure did not by any means daunt him—and on this second occasion he succeeded in obtaining sufficient support to form a committee which represented the governors, with the Duke of Northumberland at their head. He was so far successful, that in the year 1791, an old house in St. Pancras, probably on the position we now occupy, was considered suitable for the purpose. With that beginning the Royal Veterinary College was started.

(A picture of the College at that period was thrown upon the screen by means of a limelight lantern.)

The energetic Frenchman did not stop, however, with the obtainment of a single house. He proceeded to arrange for the construction of stables, for the reception of fifty horses, the building of a forge, and endeavoured to render the Institution as complete as possible. We have no particular record of what happened during several following years, but about 1826 we find in an old magazine this second illustration (exhibited on the screen) which represents an outline of the College as it stands at this moment; and I conclude that that is very much the plan which the founder of the Institution started upon, although he did not live to see its completion. St. Bel began his Principalship in 1791, and in 1793 he died. This sudden death raised the question of a new Principal, and it brings us at once to the historic name of Coleman. He and Mr. Moorcroft, who was a veterinary surgeon practising at the time, undertook together the management of the College, and for some years Coleman was left to his own resources. Moorcroft found it more satisfactory to return to his practice, and then we quickly come to the name of Sewell as being appointed an assistant professor. Shortly afterwards we have Mr. Spooner added to the list of the teachers, and in 1842 a new departure took place. The Royal Agricultural Society of England, which has always been ready to offer valuable aid to this Institution, made a grant of £200 per annum for the purpose of founding a chair of cattle pathology. In the latter part of 1842 my former teacher—and I am glad to say, present friend, who is still among us—Professor Simonds came, and under his rule in later years considerable additions were made to the College, but no great change was made in reference to its architectural character. The great object was of course to find an increasing accommodation for patients, and to improve the theatre and offices for the reception of students. Meanwhile, however, it must not be imagined that everything went on quite smoothly. It is perhaps somewhat remarkable in the history of the Institution that at its very outset it met an opposition which is entirely unaccountable, and in looking back to some of the old publications, particularly the sporting magazines, it is curious to note how very violently the writers abused the effort to improve the status of the profession. What their motives were at the time it is impossible to define. But in spite of the opposition—or rather I should say in consequence of it—the Institution flourished. We observe afterwards that it received

Government aid. Why the aid was discontinued, and under what particular circumstances, has not been clearly ascertained, nor is it even known at what date the grant was withdrawn; but there is a vague statement that the grant was continued so long as the College required the support which was voted annually by Parliament to assist in the improvement of veterinary surgery and the sanitary condition of the live-stock of the country.

Then we go on rapidly to the period at which we now stand, 1891; and we may pause for a moment here to inquire what changes have occurred during the whole of the past century. First we have completed the present buildings, which have been only finished in the last few months. Here is the view of the College as it now stands. (Exhibited.) I may tell you shortly that we have a large theatre, which is now well filled, I am happy to say, with students and visitors—we have a sufficiently extensive bacteriological laboratory, and we have a very large library and reading room. We have also a commodious museum, and as a luxury of modern times we have the whole of these buildings heated so that the students need no longer shiver on their seats whilst they are sedulously engaged in their studies. In looking back to the time over which I have very rapidly gone, we do not find that any very startling advances were made in the early part of the history of the Institution. It is quite certain that the efforts to improve the profession did not for a long time meet with any public support, but at the present day I think we may venture to congratulate ourselves on the general condition of the public mind on this subject. There is everywhere a demand for thoroughly competent, well educated veterinaries, who are capable of taking charge of the health of the live stock of the country. In the present state of affairs we find the College—and for obvious reasons I confine myself entirely to this Institution—provided with a large staff of teachers including experts in different departments. We have all the facilities which an educational institution can offer, and there appears to be good reason for the belief that with something like a working spirit among those who are most concerned in working here, we shall make very considerable progress. Referring to modern methods I may, by way of illustration, touch for a moment on the subject of the microscope, and the optical arrangements which are now in use for the purpose of demonstration. It is a question sometimes as to whether or not these refinements occupy to a large extent the time which was formerly devoted to the acquirement of practical knowledge. But I may remind you that the progress of education renders it impossible to go back to the old system. There is no alternative, rightly or wrongly; we are on the summit of a wave, and we must be content to be washed to our destination. That the acquirement of scientific knowledge need interfere with practical skill is a fallacy which cannot be defended. If I spend a few minutes in showing the object of the present means of teaching with the present improved optical apparatus, I think I can prove that position more powerfully than by any number of words. For example, suppose I require to exhibit to the class a section of a horse's foot. (Exhibited.) I may do that by handing that, which I may tell you was made some years ago, before large microtomes were invented; and instead of showing round a specimen to one individual after another, occupying a very long time—by means of the lantern I show you this (not as a diagram or as a photograph, but as the actual thing), cut from the horse's foot—a fact for which I am in a position to vouch, because I did it myself when I was a student. It is almost unnecessary to point out the enormous advantage of this mode of demonstration. You can see the arrangement of the coronary band and the direction of the fibres, &c. You can see all the details of the anatomy of that part.

Now I will bring forward another specimen. (Exhibited.) It is a thin slice of a horse's foot, suffering from laminitis. It exhibits the normal wall, which

has been pushed out of its place by a new coronary surface. The descent of the sole is the result of the displacement of the pedal bone, pushing the top of it against the horn at the bottom of the foot.

I will now pass on to deal with the subject of the lung structure. I will show you a specimen of a healthy lung. (Exhibited.) Everything is seen here, not according to the fancy of the artist, but strictly as it is in the normal state. Here are the bronchial tubes and lymphatic vessels and small capillaries. Here you see a demonstration of the difficulty of finding a healthy structure, because I see here there are some plugged vessels which are characteristic of a diseased condition. But, as far as the normal structure is concerned, here is what an animal's lung is like when in average health. The next illustration will show you what the lung is like when in a condition of disease; and I cannot do better than take a section from an ordinary case of pleuro-pneumonia. (Exhibited.) Here you see the vessels plugged up by hæmorrhage. This is the disease in the earlier stage. In the next drawing I will show the disease more advanced. (Exhibited.) Any pathologist looking at that section would see that he is dealing with a more advanced stage of the disease. I may say we are not bound to darken the room to exhibit these sections; so we will have a little more light in order that students may make notes and take drawings of the specimens. Now I will suppose for a moment that I want to send round to my class a number of parasites. I will take two families of them. The first is the ordinary tapeworm. (Exhibited.) I took this from the intestines of the dog, and Mr. Coghill has mounted it between these glasses. There is no way of showing the joints of the tapeworm so effective as this. If you were close enough you would see at what particular points the uterine organs begin. We can show you the uterus crammed with ova. Then the other family is the common whipworm found so often in sheep. (Exhibited.) Now, in order to show some 300 or 400 people what these worms are like there seems to be no better way than the one I am now making use of. In the few moments left to me I propose to occupy the time in contrasting the old and the new methods. I begin by suggesting that in their mental influence they are to a certain extent antagonistic. Under the old system the student had very little teaching. He was consequently bound to learn and put himself out of the way to acquire knowledge, and we find in the records of the time—and I have heard my friend Professor Simonds speak of the circumstance himself—that the medical schools were always ready to assist the efforts of the students, and a large number of well-known medical men of the time were ready to throw open their lecture theatres free to all students who chose to avail themselves of such advantage. As I have said, the modern method is antagonistic. You have at this Institution everything which is required. You can fit yourselves to pass an examination with the highest credit if you choose to do so; and if there is any science taught in the medical schools which it is thought desirable to introduce here, it is without the least hesitation, with the entire sanction of the Governors, brought under the notice of the student. If I may be pardoned for saying so, the result of all this appears to be that the student has acquired a habit of resignation. He submits himself to the process of being taught. But somehow it often happens that he has lost the desire to learn. I am speaking now, of course, of a certain section, and it is that section that comes most prominently under the notice of the teacher. The sedulous worker neither meets with, nor cares to meet, any particular credit for the work which he does. He has that reward which Ruskin tells us is the reward of all workmen who are worthy the name, the sentiment of delight in his own work; and in the absence of that no good work can ever be done. With the feeling I have referred to, however, it is absolutely impossible that any advance can be made.

The process of teaching is one thing, the act of learning is entirely another; and the act of learning, I contend, does not necessarily imply teaching at all. There are, and I suppose there always will be, a certain number of persons who have been characterised by a friend as men possessing a fine natural incapacity for the acquirement of knowledge, and a steady determination not to learn. A citadel of ignorance so garrisoned is absolutely impregnable. No army, composed of all the most refined and accomplished teachers in the world, armed with the heaviest literature, can make any impression on this. Not that the besieged offer any resistance; they submit at discretion. They offer an unsullied page, which they call the "tablets of their memory." On it you may write what you please; but you write it with the clear conviction that the whole will very shortly be swept away, or at least hidden from public view by the oncoming lethargy of forgetfulness which will overwhelm these. Under the circumstances, gentlemen, let me ask consideration for the teachers. There is probably, so far as the state of knowledge of the time is concerned, little or no difference between teachers in Coleman's time and those of the present time. They were at that time, as they are now, desirous of doing all they can for the class. The modern man knows more by the absolute force of circumstances; but unless he is assisted, and finds his efforts very largely supplemented by the students, it is absolutely hopeless for him to continue his work.

Before I sit down I should like to make a remark on the subject of the approaching celebration of the centenary of this place, which H.R.H. the Prince of Wales has promised to attend. My object in alluding to it now, is that I may place the students and the members of the profession in possession of the circumstances which have led up to the contemplated event. The matter was, of course, discussed by the Governors, and it was an open question at one time whether the proceedings should take place during the Congress of Demography, or be relegated to the present period of the year. The earlier celebration would have limited the meeting mainly to members of the medical and veterinary professions in this and other countries. The next question was as to the expediency of confining the celebration chiefly to the students of the centenary year, and that was the conclusion at which the Governors arrived. I am only stating the facts of the case, and not pretending to decide which course would have been the most advisable. I do not pretend to know; the event not having happened, it is extremely difficult to prophecy about it, but the feeling was unanimous on the part of the Governors of the College that it was a matter which chiefly concerned the students, and the celebration should therefore be limited as nearly as possible to them, allowing space for the invitation of certain guests, so far as the room at our disposal would permit. We find, however, that the space, considering there is something like 350 students to attend, is extremely small, and we are endeavouring to introduce to the meeting the representative men of the profession; and I can assure those members, and, through them, the whole profession that we shall only be checked in our hospitality by the want of seats. It would be an ill-advised thing to have more here than we can properly accommodate. That will explain why it is we do not invite the whole of the veterinary profession to assemble at this Institution at luncheon on the 19th. I hope that this will be clearly understood that it was a distinct resolve, and perfectly distinct intention, that the celebration should be largely confined to the students of this particular year. A medal has been struck for them, and it will be presented to all the students who have been pupils in the year 1891, commencing on the 1st January and ending on the 31st December.

I can only add, Gentlemen, that I am extremely happy to meet you at the conclusion of the 100th year of our existence, and I venture to express a hope—it may be a futile hope, but it is at any rate a pleasant one—that we may start a second century of our existence, with the determination to do the bes.

we can for the profession, so that those who celebrate the second centenary in the history of the College will be able to say that in reference to the progress of the veterinary profession it far outshone in brilliancy the advance in the first century.

Professor AXE:—Sir and gentlemen, you have heard from the Principal of the College, from what small beginnings in the course of the past century, we have risen to the state of usefulness and efficiency in which you find us to-day. He has also pointed out to you that numerous difficulties beset the path of our progress. But thanks to the instrumentality of the Governors of the Institution, aided in a large measure by the profession, those difficulties have been surmounted. It has in the course of the existence of the College, been found desirable to offer incentives to pupils to perform the duties which devolve upon them with greater diligence. In the early days of the existence of this Institution, no such things as prizes were known, but the late Professor was good enough to leave a certain sum of money, the interest of which was to be applied to the production of a Coleman medal, which is annually awarded to the most successful student in the Institution. From that time to the present awards for distinguished merit have been continuously added to the list, until we find now that in addition to the three Coleman medals, we have two scholarships and numerous class prizes. The object of my rising to-day, is to announce to you the names of those gentlemen who have been successful during the past session in obtaining the prizes. I may say that the Coleman prize has been awarded to Mr. Harold Sessions; bronze medal, Mr. Joseph H. Manton; and certificate of merit, Mr. A. E. Bayley. Scholarships:—£25 per annum for two years, Mr. H. H. Whitlamsmith; £21 for one year—for "Centenary"—Mr. W. H. Prime.

CLASS PRIZES.—CLASS C.

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| *Veterinary Medicine* .. .. | 1st Prize—Mr. J. H. Manton. |
| " " .. .. | 2nd Prize—Mr. W. N. Dobbing. |
| *Contagious and Parasitic Diseases* | 1st Prize—Mr. J. H. Manton. |
| " " " | 2nd Prize—Mr. J. W. Reynolds. |
| *Surgery and Therapeutics* .. | 1st Prize—Mr. T. A. Ford. |
| " " .. | 2nd Prize—Mr. J. H. Manton. |
| *Pathology* .. .. .. .. | 1st Prize—Mr. T. A. Ford. |
| " .. .. .. .. | 2nd Prize—No award. |

CLASS B.

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| *Anatomy* .. .. .. .. | 1st Prize—Mr. H. W. Dollar. |
| " .. .. .. .. | 2nd Prize { Mr. F. W. Hunt and Mr. G. W. Lamb, equal. |
| *Histology* .. .. .. .. | 1st Prize { Mr. F. L. Clunes and Mr. H. W. Dollar, equal. |
| " .. .. .. .. | 2nd Prize—Mr. W. F. Maynard. |
| *Physiology* .. .. .. .. | 1st Prize—Mr. F. W. Maynard. |
| " .. .. .. .. | 2nd Prize—Mr. H. W. Dollar. |

CLASS A.

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| *Chemistry and Toxicology* .. | 1st Prize—Mr. H. H. Whitlamsmith. |
| " " .. | 2nd Prize—Mr. H. W. Billinghurst. |
| *Practical Chemistry* .. .. | 1st Prize—Mr. A. C. Wilson. |
| " " .. .. | 2nd Prize—Mr. H. W. Billinghurst. |
| *Botany* .. .. .. .. | 1st Prize—Mr. H. H. Whitlamsmith. |
| " .. .. .. .. | 2nd Prize—Mr. C. M. Lawton. |
| *Minor Anatomy* .. .. .. | 1st Prize—Mr. F. W. Careless. |
| " " .. .. .. | 2nd Prize—Mr. H. W. Billinghurst. |
| *Hygiene* .. .. .. | 1st Prize—Mr. H. H. Whitlamsmith. |
| " .. .. .. | 2nd Prize—Mr. H. W. Billinghurst. |

Gentlemen, these prizes will be given to you at any time convenient for you to call upon the Secretary.

Professor SIMONDS:—Gentlemen, I have been asked to undertake a task—or rather I should say perform a very great pleasure—that is, to present our thanks to Professor Crookshank for his kindness in taking the chair on this occasion. I feel there will be no dissentient to that vote of thanks, and I need hardly in his presence say how well deserving he is of the honours which have fallen upon him for the great assiduity, and the talent he has brought to bear upon one particular part of pathology, viz., bacteriology. Perhaps in the present day it may be regarded as the chief means of throwing light upon obscure disease. These times are very different from those when I first became attached to this Institution—I do not mean merely as a student, but when I first ventured to become a teacher. Many days have passed since then, and when I look through this large audience, it is only here and there I see the faces of those whom I can recognise as my students about the year 1842, or subsequent thereto. If we contrast the state of pathological knowledge of those days with the present, I think we must all confess that the advance has been something most extraordinary. Dealing with one class of disease, we used to look chiefly to a vitiated condition of atmosphere. We knew something about infection and contagion in those early days, but we knew nothing about microbes. I believe in times passed, if a man had only hinted that there were minute organisations existing in the body which were productive of disease, I was going to say he would be almost laughed to scorn. These are happy days for you, students, and I trust that everyone of you will apply the good advice which has been given to you as a class, and that each will apply himself honestly to his work. There will be nothing missing or wanting in the way of tuition with regard to the importance of your taking charge of the stock of this country, and the after success will depend on your individual selves. Allusion has been made to the difference which existed many years ago, before in fact I was officially connected with this Institution, the students then having to go outside the College walls to seek information. It fell to my lot to be one of these. Entering the College in 1828, we had in those days no teaching in regard to chemistry, and very little and very imperfect teaching with regard to anatomy. I, with some others, therefore attended the anatomical school, which then existed in Aldersgate Street, conducted by Mr. Tyrrell, if I remember the name rightly. There I attained knowledge, although it was on human anatomy—and not only this, but a greater desire to pursue comparative anatomy. From Mr. Tyrrell's teaching, I found how deficient we were within the walls of this College. With regard to chemistry, the students had really to work very hard to obtain information on this important subject, and we used to have to go about 8 o'clock in the morning to attend chemical lectures from Dr. Agar, a gentleman connected with one of the hospitals, who was certainly a very good teacher in his way. I shall never forget one circumstance—the Dr. was rather facetious—which occurred. He was speaking with reference to the use, medically and otherwise, of alum. He said, "It is sometimes used, nay, very frequently used, for the purpose of making bread whiter," and he gave orders that when the baker called that morning (and it was generally at the time Dr. Agar was engaged with the class) he was to be ushered into the room. The baker came in. Dr. Agar had a very small piece of alum in his hand, and he called the baker to him, and said "Do you know what I have here?" The man said "No, Sir." "Why, Sir," Dr. Agar said "you ought to know, it is a piece of alum—do you know I took that out of your bread?" "Oh! no," replied the man, "I am sure you did not take as much as that out of our bread, because it is nearly as much as our master puts in the whole batch." I never forgot that circumstance, but I did not think I should have to tell that tale here to-day.

With regard to the Institution as it now exists, and further with regard to the duty I have to perform, I would simply repeat that you must, as students, really acquire knowledge for yourselves. It is not merely attending to your teachers that is required, not merely being present at the lectures, but it is at that particular time to read up your subjects and work honestly from Monday morning until Saturday night; and unless each and every one of you are determined to do that, you will never succeed in the profession which you have adopted. My duty now is simply to ask you to join with me in a vote of thanks to the Professor for his kindness in taking the chair on this occasion.

Professor CROOKSHANK, who was warmly received, said:—Mr. Principal, Professor Simonds, and gentlemen, it has been a great privilege to occupy the chair and to listen to such an eloquent, impressive, and instructive address. I cannot refrain, on my own behalf, from expressing my thanks to Professor Brown, and I trust you will allow me to give your cordial thanks also. Such an address must appeal to students, both old and new, and lead them to realise the advances made of late years, and the responsibilities and consequently the great importance of the profession which they have entered. In my capacity as a Governor of this College, I should like to address a few words, more especially to the new students. I am most anxious to impress upon them, and upon you all, that the Governors very keenly feel their responsibilities, and that it has been, and will continue to be, their aim to provide for students every means and every facility for affording such education as will secure to every diligent student success in his professional career. Opinions differ very widely as to the exact lines upon which the system of education should be conducted. Some advocate a purely practical training, others say that still greater attention should be paid to scientific subjects. I myself believe that it is the duty of the Governors of this College to adhere to a system of education which combines practice with science, and in this way to keep up the system which was inaugurated by your great master, Coleman. The supply must be regulated by the demand, and I must ask you to remember that the Governors have to meet the requirements of students entering with the intention of becoming general practitioners, and to whom thorough training in routine practice is of vital importance. On the other hand, the Governors have to meet the requirements of the more ambitious students, who aim at holding official and administrative posts, or professorial chairs in the schools or colleges, or at becoming trained experts, skilled advisers, and original investigators. In connection with original investigation, I am asked by your Principal to remind you of the generosity of the Royal Agricultural Society, which provides £500 a year for original research. Of course, for the skilled advisers, original investigators, and those seeking official appointments, a thorough scientific training is absolutely essential, but at the same time science must not be neglected by the humblest practitioner.

In these days of free education and rapid progress we must keep pace with the times, and must not allow the veterinary practitioners of the future to be taught by, instead of teaching, the stockowners and agriculturists in this country. The public is every day becoming less apathetic about scientific matters, and more enlightened on these subjects. A veterinary surgeon, not only combining science with practice, but having a grasp of scientific subjects sufficient to make these matters intelligible to his better class clients, will inspire confidence, increase the number of clients, and raise himself still higher in the social scale. We must also consider the value of scientific training as a mental exercise, with the result of greater accuracy and precision in diagnosis and treatment. With regard to the skilled adviser, I would point out that his is a branch of the profession which is increasing in importance day by day. No one could fail to appreciate this who attended the recent meetings of the International Congress of Hygiene, and who witnessed the

part taken by veterinary surgeons in the discussion of subjects, such as the transmission of diseases to man by the consumption of flesh and milk of diseased animals. Tuberculosis and anthrax have to be contended against, or take for an example the prevention of rabies. Now, the only satisfactory way of preventing rabies in man is to get rid of the cause, and surely the measures for stamping out rabies should be carried out under the immediate superintendence of members of the veterinary profession. There is no doubt whatever in my mind that if the scientific education of the veterinary student is neglected, work that should be done by veterinary inspectors and the profession generally would gradually slip into the hands of those who have been educated in medical and agricultural colleges. I advocate, therefore, the still higher education of the veterinary student. This will necessitate a longer period of study, and it will also require reform in the system of examination.

We have heard a good deal in regard to the diminution of the number of "passes," and there has been a tendency to consider that the fault lies entirely with the students. I am very strongly of opinion that there is a good deal of reform necessary in the system of examination. The Governors have heard with great regret that there is some lack of enthusiasm in the dissecting room, and that, too, can be remedied by reform in the system of examination. The enthusiasm of the *medical* student in the dissecting room has been greatly increased since it has been made compulsory to pass a practical examination in dissection before obtaining a diploma.

I would encourage the ablest of veterinary students by enabling them—if it can be arranged—to get a University Degree. If the College is not yet in a position to grant that distinction, it might be affiliated with the new University to be established in London. A student can be a thoroughly practical man, and at the same time if he is a distinguished student there is no reason why he should not be marked out among his colleagues, by possessing the title of B.V.Sc., or D.V.Sc. This would in no way interfere with the membership or fellowship of the College, which would be still essential in order to obtain a licence to practice. When I look round at the vast improvements made in this College, I cannot help looking forward to the day when the Royal Veterinary College of London will be more widely recognised as a great teaching school, not only attracting students from all parts of the Empire, but having such fame that the students of other nations will not consider their education complete until they have seen something of the practice and training of the veterinary school of the largest city in the world. Gentlemen, on behalf of the Governors I welcome the new students to this College, and I trust you will make every endeavour to obtain success which will bring reward to yourselves and credit to the College. In conclusion I must again express to you, Professor Simonds, Mr. Principal, and gentlemen, the very high honour I have felt in presiding on this occasion.

The proceedings then terminated.

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# Jurisprudence.

## A HORSE DOCTOR'S NEW PRINCIPLE.

A HORSE doctor named Maddle, of 30, Church Street, Stoke Newington, appeared recently in the Edmonton County Court as the plaintiff in an action brought against a Mr. Rowley, of 146, High Street, Stoke Newington, to recover £1 7s. for "professional services rendered." Mr. J. Avery, the solicitor appearing for the defendant, asked the plaintiff as a preliminary question—"Are you a veterinary surgeon as you are described in the summons?" Plaintiff: No; horses cured on the new principle, no cure no

pay (laughter). The bill will explain—(handing to Judge Abdy a handbill in which he described himself as "the poor horse's friend," and as the "magic life-preserving horse and cattle drinks, condition powder, and embrocation manufacturer"). I have been in the business eighteen years, and I have treated the defendant's horses for twelve months, and have given him every satisfaction, not with one horse but with many. The odd 7s. which I claim is the balance of an account for 13s. which I rendered to him, and off which he paid 5s. at one time and 1s. at another. The sovereign is for curing a horse of lameness, according to contract. The horse was very lame, and he asked me to see it. I said its cure would be a long job, and we agreed that I should do it within three months for £1, "no cure no pay," according to the new principle (laughter). I cured the animal, and it was able to be driven out, and a wager of £50 was laid on its trotting within three months. Mr. Avery: Are you a veterinary surgeon, as you say you are in this summons? Plaintiff: It is not written up over my door, and here you are—in the bill it says "though not a veterinary surgeon, perhaps he knows as much." Turning towards the public in the Court, the plaintiff addressed them with respect to his testimonials, including one which he had received from the defendant, and spoke rapidly with regard to recipes, until the judge, who made some unsuccessful attempts to check him, said, "I wish some one had a recipe for doing something to your tongue." (Laughter.)—It appeared that the plaintiff had entrusted a debt-collecting agent to issue the summons in this case, and that was how the wrong description of the plaintiff as a veterinary surgeon had been given. —Mr. Avery submitted that the plaintiff could not recover. The 17th section of the Veterinary Surgeons' Act provided that after the passing of that Act no person except a member of the Royal College of Veterinary Surgeons, or a person who had been certificated before the passing of the Act, could be entitled to recover any fee for performing any veterinary operation, or giving veterinary attendance or advice, or practising as a veterinary surgeon, and the penalty for a breach was a fine of £20.—The judge upheld this contention, and gave a verdict for defendant, with costs.—The plaintiff and his wife left the court protesting against the decision, and declaring that they would have a new trial in another court.

Prosecution of a Veterinary Surgeon for Cruelty.—At the Llandudno Petty Sessions on October 19th, Frank Booth, M.R.C.V.S., a veterinary surgeon in practice at Llandudno, was charged by the Royal Society for the Prevention of Cruelty to Animals with unlawfully and cruelly treating and torturing a mare on the 17th September. He pleaded not guilty.—Mr. R. S. Chamberlain appeared for the Society, and Mr. W. D. Henderson for the defendant.

Mr. Chamberlain in opening the case, said the alleged offence took place at the Llandudno races on the Commissioners' Field on the 17th September, and the compaint was that the defendant was reckless, or thoughtless, and showed a want of skill in killing the mare, which had broken a leg at the races. The mare was laid on its side, and the defendant asked to put it out of its misery. This he set to work to do with a penknife. There was no objection to the knife if it was put in the right place. A vein was opened, there was plunging about, some attempt was made to tie the animal, but there was no attempt made to assist blood from the wound, and it did not flow as it should do. Not satisfied with the bleeding process, he was instructed that the defendant actually hammered the mare on the head with a wooden mallet. That did not kill it. Mr. Chamberlain went on to state that the mare went on suffering for a considerable time, and unnecessarily. He contended that there were several ways in which the animal might have been saved suffering if the defendant had set about it in the proper way. After making such a mess of it the defendant left. He should surely have seen the animal dead before leaving it. He submitted

that there had been a gross act of cruelty, and that when the animal was cut by another man subsequently it died in a few minutes.

Inspector JOHNSON, the Society's officer, deposed to seeing the defendant throw the mare down and get a small penknife and insert it in the left side of the neck, causing blood to flow. The mare commenced to kick about, and this continued for half-an-hour, after which a wooden mallet was brought and the defendant struck the mare heavily with it twice. This seemed to daze it. He did not see the defendant after that, as he (defendant) went away. A few minutes afterwards the animal seemed to recover, and struggled to its feet a few yards, and then fell forward covered with blood and perspiration. Soon after that a man named Jackson inserted his two fingers in the wound, cut something, the blood rushed out very freely, and the animal died in about ten minutes. The animal was 55 minutes dying.

Cross-examined by Mr. HENDERSON: The mare went down at a quarter to six, and died at twenty minutes to seven. He thought the defendant did not cut the main artery, because the mare died so soon after Jackson had cut it. The defendant had fair play from the crowd if he had gone the right way about it. The crowd tried to hustle him (witness) off the field, but did not do so. In his opinion the animal ought to have been shot or pole-axed. He could have used the gun notwithstanding the crowd. He considered that the animal was cruelly treated.

Other witnesses were examined for the prosecution; then

Mr. HENDERSON, for the defence, said it was a case brought against a professional man, who, from the moment he entered college to the time he quitted it, studied the science of rendering aid to dumb animals. It was an occupation second only to that of a physician whose duty it was to relieve human pain. The charge was brought by an inspector who existed to prevent cruelty to animals, and yet who stood by all the time in the present case and never stopped what was going on. It was a case which should be proved to the very hilt before a conviction, owing to the consequent damage to Mr. Booth's reputation. The facts were that a mare broke its leg, and the defendant was asked by the owner to kill it. He tied its legs and also tied a horse cloth over the broken limb to save the animal suffering unnecessary pain. After obtaining aid to keep the mare's head still, he should prove that the defendant proceeded in a scientific manner to open the animal's neck, thrust his hand in, and grasped the carotid artery and jugular vein, and that he proceeded in the recognised method of killing a horse in every veterinary college in the kingdom. His desire was to cause as easy a death as possible. He should call professional witnesses who would tell them that a horse being bled to death in this manner was the easiest death it could have. The mere fact of a horse struggling did not prove pain, as a horse being kept on the ground would naturally cause it to struggle. Unless pain was caused in a culpable manner, he submitted that the charge of cruelty and torturing must fall to the ground. The Act was not intended to apply to a case of this nature, in which a professional man was called in, but it was intended to apply to working horses in an unfit state, &c. On the present occasion there was a great crowd, everybody shouting out their own pet theory as to what should be done. On behalf of Mr. Booth, he denied entirely that there was any bungling, but that everything was done in a scientific manner. Mr. Booth did his best, and when a person did his best that was all that could be done.

A number of witnesses were examined for the defence, among them being THOMAS GREAVES, Manchester, Fellow of the Royal College of Veterinary Surgeons, and practitioner of 55 years' standing, said he was reluctant to oppose the case of cruelty that day, as he was partial to the Society. Bleeding to death he considered the easiest method to kill a horse. From

what he had heard he considered that proper steps were taken under the circumstances to kill the mare in question. The blood having come out in jerks was a sure sign that the carotid artery was cut, as well as the jugular vein.

Cross-examined by Mr. CHAMBERLAIN: The use of the mallet was to accelerate death. I came here to-day to give evidence without any payment whatever. My professional reputation is at stake as much as Mr. Booth's.

Professor WILLIAM WILLIAMS, Principal of the New Veterinary College, Edinburgh, Fellow of the Royal Society, and the author of veterinary books, said he was of opinion that in the present instance death was brought about in a proper manner.

After a consultation, the CHAIRMAN said the Bench had decided to dismiss the case, but they thought a more expeditious way ought to have been used to kill the animal. But in the present case, according to the Act, there had not been cruelty.

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## AN APPEAL.

GORDON *v.* SHEATHER.—In a recent action brought by Mr. Panmure Gordon, of 5, Carlton House-terrace, against Mr. Charles Sheather, F.R.C.V.S., of 51, York-terrace, Regent's-park, Mr. Gordon sued Mr. Sheather for damages in consequence of his alleged negligence as a veterinary surgeon in giving a certificate that a mare purchased in May, 1890, after examination by him, was sound. The damages were laid at £400, the price paid for the mare having been £450, and her alleged value, in consequence of her affirmed unsoundness, being put at £50. The mare is still in Mr. Gordon's possession.

Notwithstanding the fact that Mr. Frederick I. Mavor, the eminent veterinary surgeon of Park-street, gave evidence that he had examined the mare at the plaintiff's stables in July, 1890, and certified her sound; that Mr. Frank Mavor, also of Park-street, said in his evidence that he had made a thorough examination of the mare in July, 1890, and certified her sound; that Mr. George Fleming, F.R.C.V.S., late Principal Veterinary Surgeon in the Army, said he had examined the mare, and could detect no unsoundness in her; that Mr. Adrian Jones, the Veterinary Surgeon to the 2nd Life Guards, Mr. Edward Coleman, Mr. Ernest E. Batt, Mr. T. G. Chesterman, Mr. F. T. Stanley, and Mr. James Overed, all well known veterinary surgeons, gave similar evidence; and although Mr. Herbert Rymill, the proprietor of the Barbican Horse Repository, swore that in July, 1890, he would have given £300 for the mare, and that he "would give £200 for her now" (April, 1891); the jury failed to agree, and were discharged without giving a verdict. Mr. Sheather was willing to accept the verdict of the majority, but the plaintiff declined to do so. It was mentioned in the *Veterinary Journal* that the division of the jury was eleven to one, eleven being in favour of the defendant.

Mr. Sheather is not a wealthy man, and the heavy expenses he has had to incur are of importance to him. A matter of even more importance is that his professional skill, and his due vigilance in its exercise, have been called in question.

Under these circumstances, Mr. Sheather's professional brethren, and those of his clients who have confidence in his professional skill and the conscientious care with which he habitually uses it, are invited to evince their sympathy by contributing to a fund for the payment of the legal expenses he has been forced to incur.

The actual costs paid by Mr. Sheather amount to about £350. They would have been much more had not all the professional witnesses generously returned the cheques sent to them.

An account has been opened with the London and Westminster Bank, St.

James's-square, under the name of "The Sheather Defence Fund," to which contributions may be paid, and remittances may be sent with the enclosed form.

This is certainly a case worthy of notice and sympathy, and we trust the appeal will be responded to by all those who can understand the cruel ordeal to which Mr. Sheather was subjected. More especially should the appeal meet with a liberal response from the professional witnesses of the wealthy complainant, who received such large fees and extraordinary conveyance allowance with their subpœnas.

We hear that the mare in question was recently shown at the meeting of the Royal and Central Bucks Agricultural Association, and that she looked remarkably well and was quite sound.

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# Notes and News.

THE MUZZLING ORDER.—The Board of Agriculture have modified the provisions of the muzzling order in the county of Hants, and in the boroughs of Southampton, Bournemouth, Portsmouth, and Winchester, whereby the muzzling of dogs is rendered unnecessary, provided the animals have on collars upon which are engraved the names and addresses of their owners. The order came into force on September 28. Two deaths from hydrophobia (in man) are reported as having occurred in London.

CONTAGIOUS PLEURO-PNEUMONIA IN AUSTRALIA.—The chief inspector of cattle in the colony of Victoria, has been advised of an outbreak of pleuro-pneumonia amongst some 200 Queensland cattle. The animals had been quarantined, and about twenty have been destroyed. The animals which had been inoculated were not diseased at all. Over 300 animals have also been stopped at Hawker owing to an outbreak amongst them.

UNUSUAL FECUNDITY IN A SHEEP.—An extraordinary case of fecundity in a sheep is stated to have occurred in the Merino district of Victoria, and is supported by the independent testimony of several people. The sheep, a cross-bred ewe belonging to Mr. John King, gave birth to no fewer than six lambs. The night was cold and wet, which may possibly account for none of the lambs being found alive in the morning, though all were perfectly formed and had apparently breathed. It is not altogether uncommon for a long-woolled ewe to produce three lambs; but double that number at a birth is undoubtedly a very remarkable occurrence, of which there is not an authenticated case in the colony.

HORSES, MULES, AND ASSES IN THE UNITED STATES.—From a census bulletin just issued, it appears that the horses in the United States numbered 6,249,174 in 1860, 7,145,370 in 1870, 10,357,488 in 1880, and 14,976,017 in 1890—having more than doubled in twenty years, as will be seen. Mules and asses do not increase so rapidly; we had 1,151,148 in 1860, 1,125,415 in 1870, 1,812,808 in 1880, 2,296,045 in 1890. Of horses, three States report over a million each on hand last year—Illinois, Iowa, and Texas. Two others (Missouri and Kansas) have over 900,000 apiece.

THE BACILLUS OF INFLUENZA.—At a recent meeting of the Société des Sciences Médicales of Lyons, Dr. G. Roux presented a communication (*Lyon Medical*, August 9th, 1891) embodying the results of a research made in conjunction with MM. Pithion and Teissier, on the bacillus of influenza. In the blood of patients suffering from that disease a streptococcus was found when the fever was at its highest point; in the urine, on the other hand, diplobacilli were found. The authors conclude that influenza is probably caused by one polymorphous micro-organism which exhibits differences in form in the varying

phases of the disease. This may account for the great discrepancies of observation which have been reported. M. Roux showed drawings illustrating the successive transformations of the micro-organism.

Results of Breeding in the American Race-Horse.—While the public is still marvelling over Salvator's wonderful performance in running a mile in 1.35½, there are few who have, through comparison and analysis, sought to realise what a terrific burst of speed this is. It is nearly forty miles an hour, a rate averaged by very few of our fastest railway trains. There are 5,820 ft. in a mile, so that for every one of these ninety-five seconds—for every beat of a man's pulse—this wonderful horse covered fifty-five and three-tenths feet of ground. The shortest space of time noted by the turfman's watch is a quarter of a second—an interval so brief that the eye can hardly observe, the mind can hardly appreciate it. Yet in every one of those 382 quarters of a second that magnificent creature leaped sixteen and three-tenths feet. Such are the amazing results of careful breeding as exhibited—says the *Scientific American* —in the American racehorse.

Veterinary Surgeons and Horse-shoers in Paris.—The Live Stock Journal announces that an interesting inquiry, induced by the number of horses in the streets, has just been opened in Paris, as to the number of farriers in that capital. From this inquiry it appears there are 338 farriers' shops, employing 1,179 men in different capacities. The average salary shows 5s. 5d. per day per head. The shoeing smith takes 5s. 10d. per day. The daily production per man is thirty hammered shoes, while the cost of shoeing is 4s. 2d. per horse, or 1s. 0½d. per shoe. A small profit only remains to the farriers after all, owing to the competition between them and the veterinaries, and the report of the farriers' corporation on the subject concludes as follows:—"The small masters succumb to give way to the disciples of Bourgelat (veterinaries with diplomas, who have been educated in the special State schools of Alfort, Lyons and Toulouse) and to those bodies which more and more monopolise the transport service."

The Fate of Representative Bodies.—The *Times*, of September 30, in a leader on the retirement of Sir John Lubbock, Lord Rosebery, and other eminent men from the London County Council, says: "It is the fatal law of the existence of representative bodies, that they tend to level themselves down to the standard of their least worthy members. The noisy, the bumptious, the pushing, the self-sufficient, and the vulgar steadily and surely elbow out men of character and intelligence. It was only too evident from the first, that the London County Council contained too many of the less desirable types to remain an agreeable, or even tolerable sphere of labour for the men whose names formed its principal claim to public respect."

Proposed Veterinary School in Calcutta.—A proposal for the establishment of a veterinary school and hospital in the vicinity of Calcutta, for the treatment of cattle, has for some time been under the consideration of the Government of Bengal. Baboo Shew Bux Bogla has very generously come forward with the handsome donation of Rs. 30,000 in aid of the project, which may therefore be expected soon to take a definite shape. He has also offered to provide a site for the necessary buildings, and the suitability of the site proposed by him is now being considered.

A Model Slaughterhouse.—A new central slaughterhouse has recently been opened at Nuremberg. It is situated in the south-western part of the town, and is constructed according to the most advanced scientific principles. It includes a special slaughterhouse entirely isolated from the other parts of the establishment for the slaughter of animals either obviously diseased or of doubtful soundness; there is also a separate place for animals suffering from cattle plague, and a cool air chamber kept at a temperature of 4 degs. to 5 degs. C. for the storing of meat. In connection with the slaughterhouse is a

building where animal vaccine lymph is prepared, and where the calves used for the purpose are kept under observation.

SWINE PLAGUE IN GERMANY.—Further experiments have been made in Friesland with the vaccination of pigs. Twenty-one cattle owners vaccinated 103 pigs with the disease. Swine fever having broken out, the vaccinated pigs were brought into close contact with those affected, the result being that they all remained in a healthy condition. The experiments will be repeated.

THE AGGRESSIVE SPARROW.—The sparrow, wherever he gets a footing, becomes master of the situation. Although only introduced into the United States in 1853, he ravages thirty-seven States and six territories, comprising an area of 885,000 square miles, and in Canada he is familiar over 160,000 square miles of territory.

GLANDERS IN CALIFORNIA.—Over fifty horses have been killed in San Diego County with the hope of eradicating the glanders, which has broken out in that portion of California. When the contracts for irrigating improvements here were let, the contractors brought 300 horses to the coast. These horses were gathered from various points in Northern California, and some of them came directly from Kansas and other eastern States. Some time after the arrival of this stock, glanders broke out among them and has spread in a manner that is sufficiently alarming to cause the Board of Supervisors and Dr. Backenstose, county veterinary surgeon, to adopt the most extreme measures to stamp it out. In all, about fifty horses belonging to the contractors were killed by the veterinary surgeon, and the same course has been pursued wherever a pronounced case has appeared. The supervisors and veterinary surgeons are burdened with some responsibility, for if a horse is condemned and destroyed which, on investigation, proves to be free from disease, the county becomes liable for the value of the animal. Under these conditions, the board has endeavoured to make its investigations thorough. By pursuing this course, it is believed the disease is now fairly under control, and only scattering cases are now reported.

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# Correspondence.

## A CORRECTION.

SIR,—In the Report on the Proceedings of the International Congress on Hygiene in your last issue, the statement occurs (p. 187) that "Professor Walley saw no harm in the general use of Colostrum milk from *tubercular cows*" (the italics are mine).

I think I need scarcely say that I did not say anything of the kind. I certainly stated that I saw no harm in the use of Colostral milk, but I did not refer to tuberculosis in connection with it.

THOMAS WHALLEY,
Royal Veterinary College,
Edinburgh.

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## ARMY HORSE-SHOEING.

DEAR SIR,—After reading the articles on "Cold Shoeing for Military Purposes," by Dr. Fleming, C.B., I have thought that a useful addition might be added to farriers' tools by a small hand-anvil, such as is used by the "nalbands" in India. It is a simple piece of iron shaped like a marlingspike, with two exceptions, viz., a somewhat flattened projection at the top, and a ring of iron halfway down to prevent it being driven too deeply into the ground. I have noticed how exceedingly well they answer in the place of an anvil; and in case of cavalry moving over ground where waggons could not follow, they

would have with them the means of altering a shoe. The whole instrument is not much bigger than an ordinary hammer, and could easily be added to the usual tools. I endeavour to give a rough idea of what I mean, but I fear the drawing is not very good.

T. J. STANLEY CLARKE, M.R.C.V.S.

## FARRIERS.

DEAR SIR,—There is a new local directory published in this district, and in it a groom—who has lately taken to "doctor" animals—is styled a "farrier." This is an example of the danger of this term being applied to shoeing-smiths. What remedy have we veterinary surgeons to apply in such a case?

"TRUTH."

[The Act of Parliament was framed to deal with such cases. Shoeing-smiths have no right to adopt the word "farrier."]

## MILITARY-CIVIL VETERINARY INSPECTORS.

SIR,—At the annual dinner of the South Avon and Stour Agricultural Society, held the other day, the chairman (Lord Malmesbury), in the course of a speech, said: "They now had a minister of agriculture, and it was to a great extent due to a gentleman representing that department and well-known in this neighbourhood—Captain Spencer, that the epidemic of pneumonia had been discovered and stamped out recently." Tack this on to what you said in the JOURNAL for October, and then let us ask where the veterinary profession comes in in this centenary year of the Royal Veterinary College, the principal of which is the veterinary adviser of the Government Agricultural Department?

"A VETERINARY NONENTITY."

## Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from Dr. Pearson, United States of America; Prof. Walley, Edinburgh; G. J. R. Rayment, A.V.D., India; G. M. Smith, London; H. G. Rogers, London; A. E. Macgillivray, Banff; E. E. Bennett, A.V.D., Newcastle-on-Tyne; W. E. Baxter, London: J. Mills, A.V.D., Bombay; T. J. G. Clarke, Brighton; Dr. D. J. Hamilton, Aberdeen; F. Smith, A.V.D., Aldershot; R. A. N. Powys, London; R. Dawson, Weston-super-Mare; A. W. Hill, London; Professor McCall, Glasgow; Professor W. Williams, Edinburgh; T. Greaves, Manchester; Truth; A Veterinary Nonentity.

BOOKS AND PAMPHLETS: *Dr. Bang*, Ueber Rothlauf-Endocarditis bei Schweinin; *M. G. Neumann*, Contribution a l' Étude des Ricinidæ; *N. Lanzilotti-Buonsanti*, La R. Scuola Superiore di Medicina Veterinaria di Milano; *D. J. Hamilton*, Immunity from Disease *F. Smith*, Saddles and Saddlery, Bits and Bitting; Annual Statistical and General Report of the Army Veterinary Department; *G. T. Brown*, The Structure of the Horse's Foot and the Principles of Shoeing; National Register of Farriers and Shoeing Smiths; Bulletin des Séances de la Soc. Nat. d'Agriculture.

JOURNALS, ETC.: *Journal of the Royal Society of England; Echo Veterinaire; Thierarzt: Annal. de Med. Veterinaire; Lancet; Journ. de Med. Veterinaire et de Zootechnie; Rec. de Med. Veterinaire; British Medical Journal; Live Stock Journal; Wochenschrift f. Thierheilkunde u. Viehzucht; American Veterinary Review; Bacteriological World; Repertorium der Thierheilkunde; Clinica Veterinaria; Mark Lane Express; Field; Deutsche Zeitschrift f. Thiermedicin u. Vergleichende Pathologie; John Hopkins' Hospital Bulletin: Moderno Zooiatro; Edinburgh Medical Journal; Australasian Veterinary and Live Stock Journal; Journal of Comparative Medicine and Veterinary Archives.*

NEWSPAPERS: *Original Llandudno Directory; Lahore Civil and Military Gazette; Times of India.*